



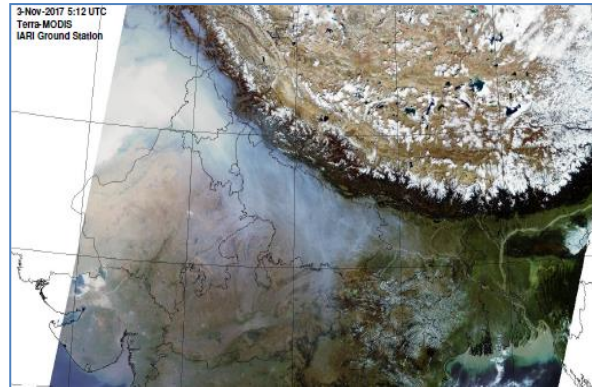
## Bulletin No. 41

Events Date:  
25-Oct-2022

Issued on:  
25-Oct-2022



# MONITORING PADDY RESIDUE BURNING IN INDIA USING SATELLITE REMOTE SENSING DURING 2022



Prepared by:

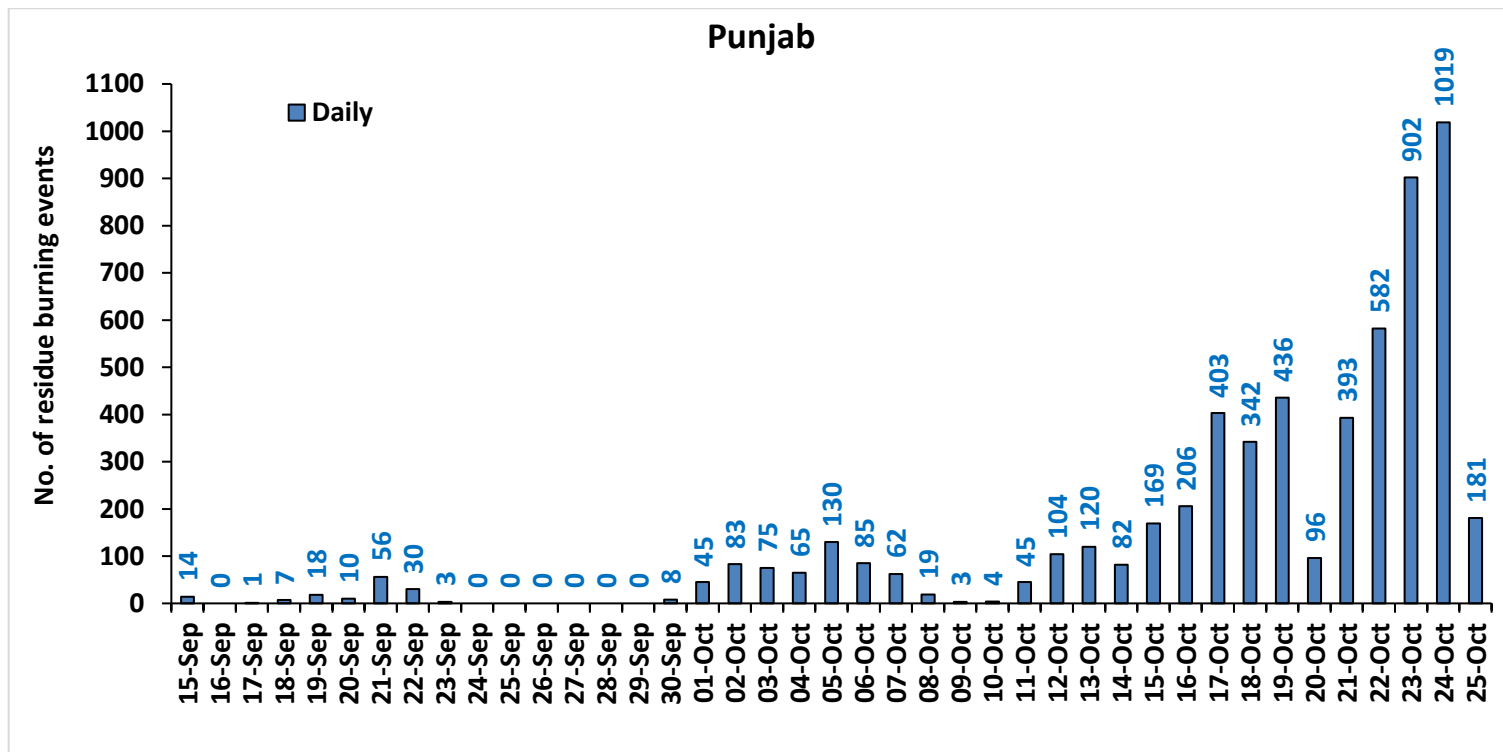
Consortium for Research on Agroecosystem Monitoring and Modeling from Space (CREAMS) Laboratory,  
Division of Agricultural Physics, ICAR – Indian Agricultural Research Institute, New Delhi – 110012

<http://creams.iari.res.in>

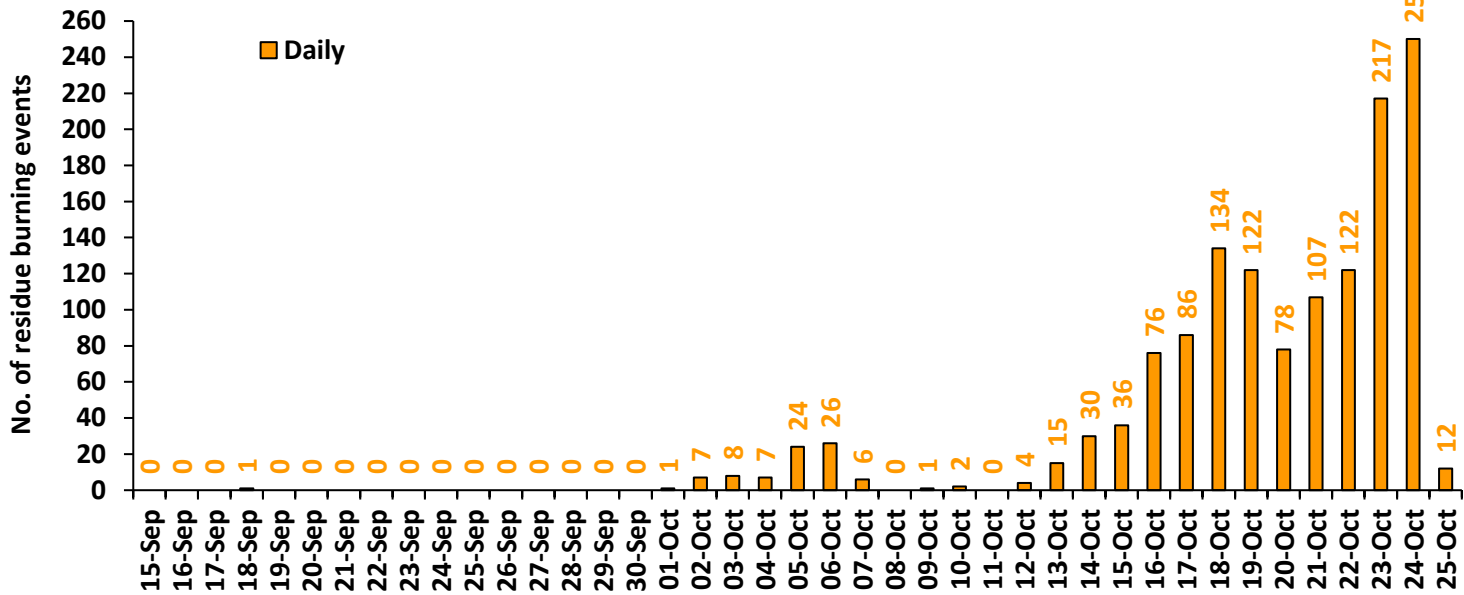
## Highlights for 25-Oct-2022

- The active fire events due to rice residue burning were monitored using satellite remote sensing, following the "Standard Protocol for Estimation of Crop Residue Burning Fire Events using Satellite Data".
- Satellites detected **206** residue burning events in the six study States on 25-Oct-2022.
- The state wise events detected on 25-Oct-2022 were **181** in Punjab, **12** in Haryana, **9** in UP, **0** in Delhi, **4** in Rajasthan and **0** in MP.
- Total **8048** burning events were detected in the six states between 15-Sept-2022 and 25-Oct-2022, which are distributed as **5798**, **1372**, **561**, **5**, **102** and **210** in Punjab, Haryana, UP, Delhi, Rajasthan and MP, respectively.

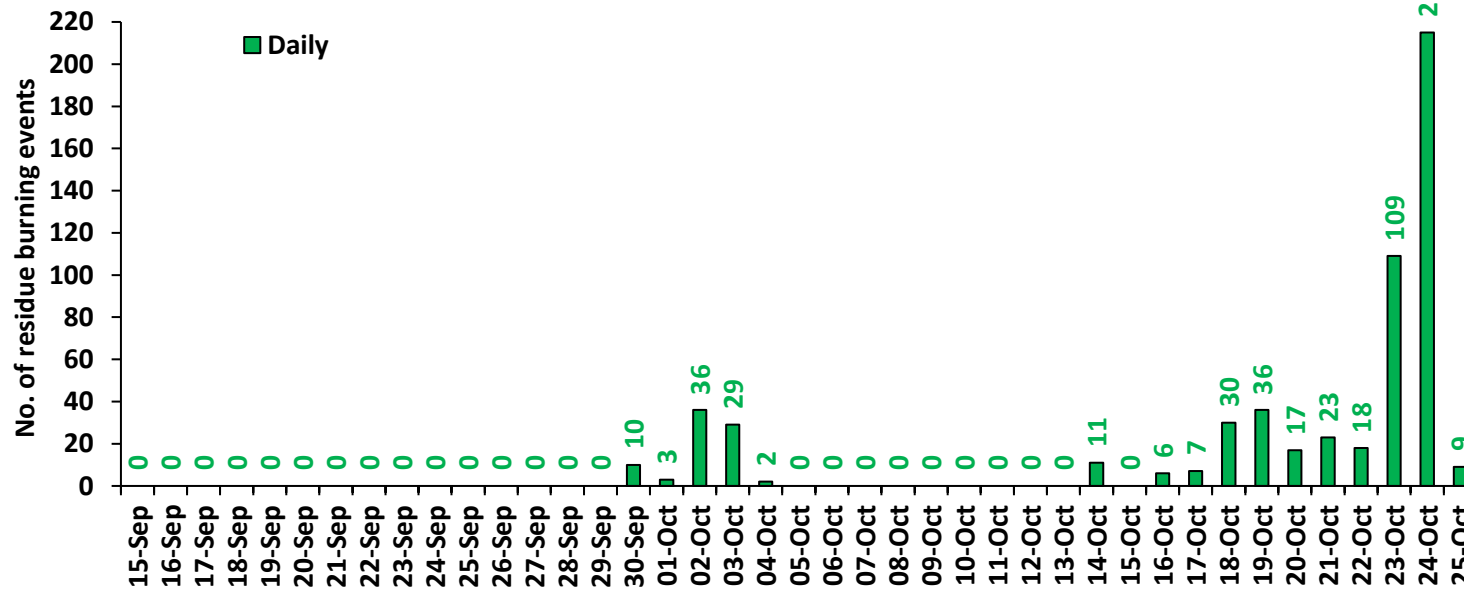
### Temporal distribution of rice residue burning events for the study States in 2022



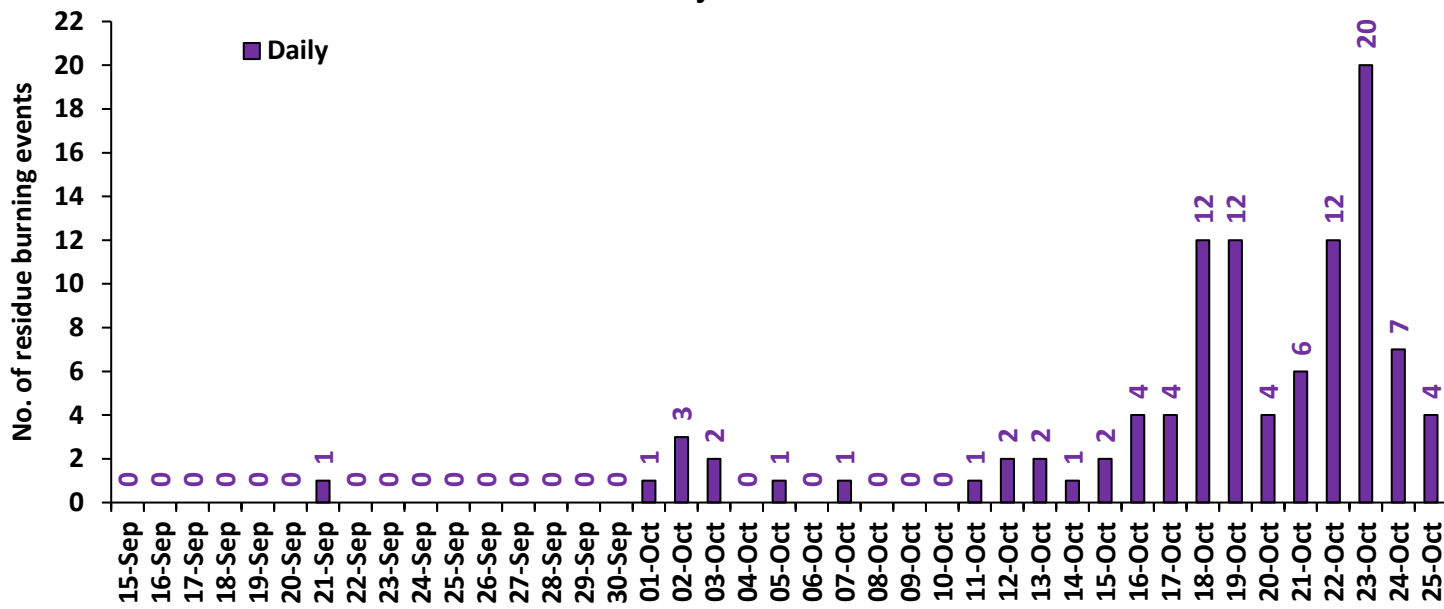
### Haryana



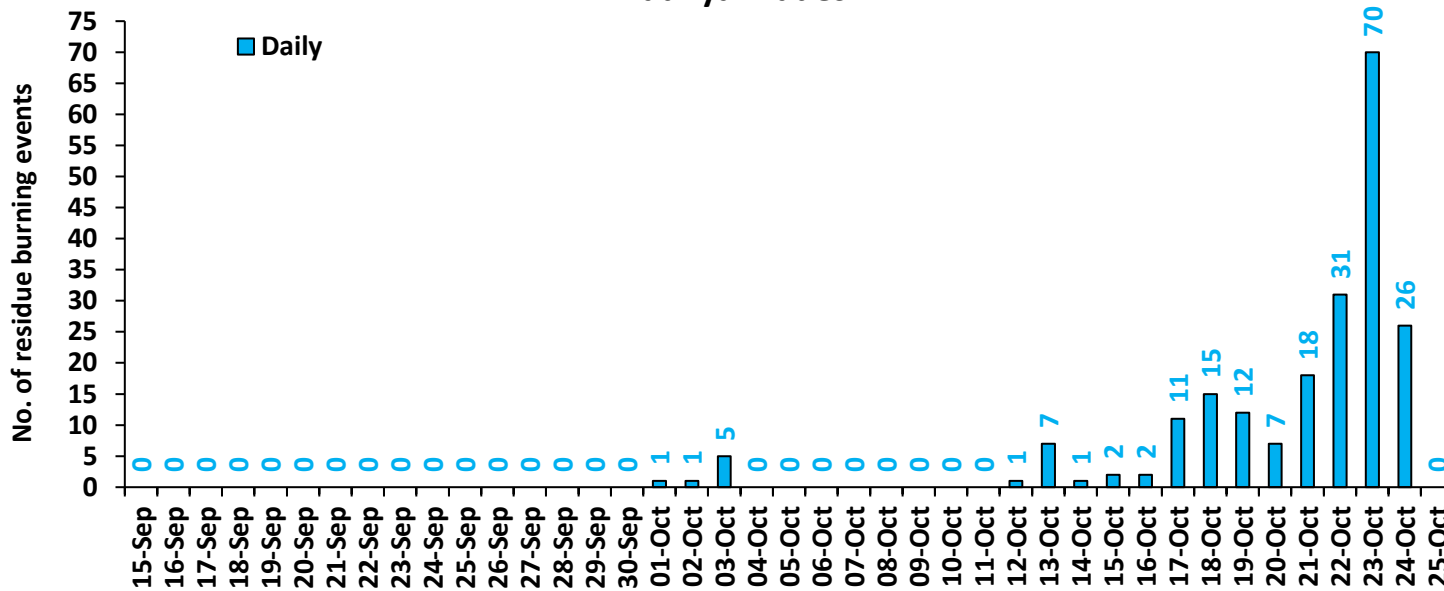
### Uttar Pradesh

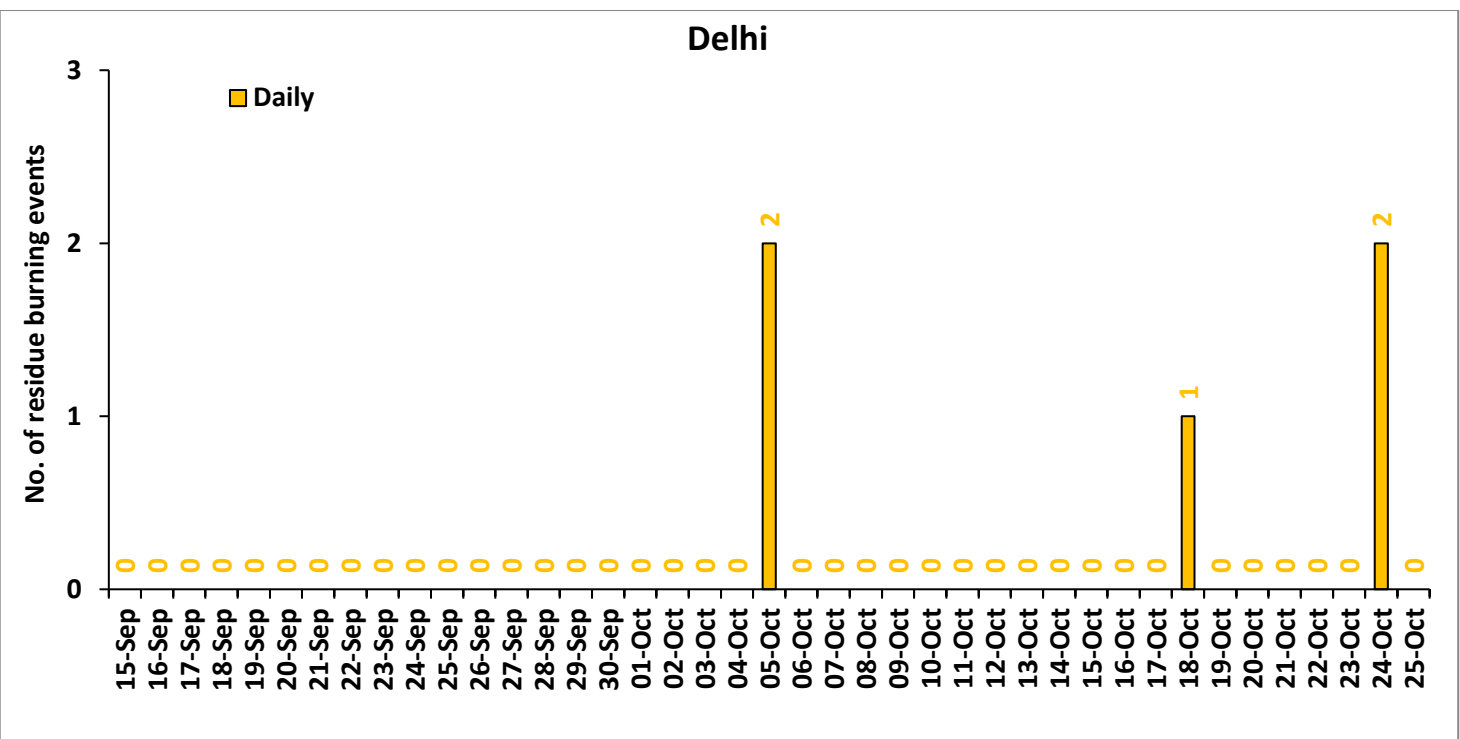


### Rajasthan

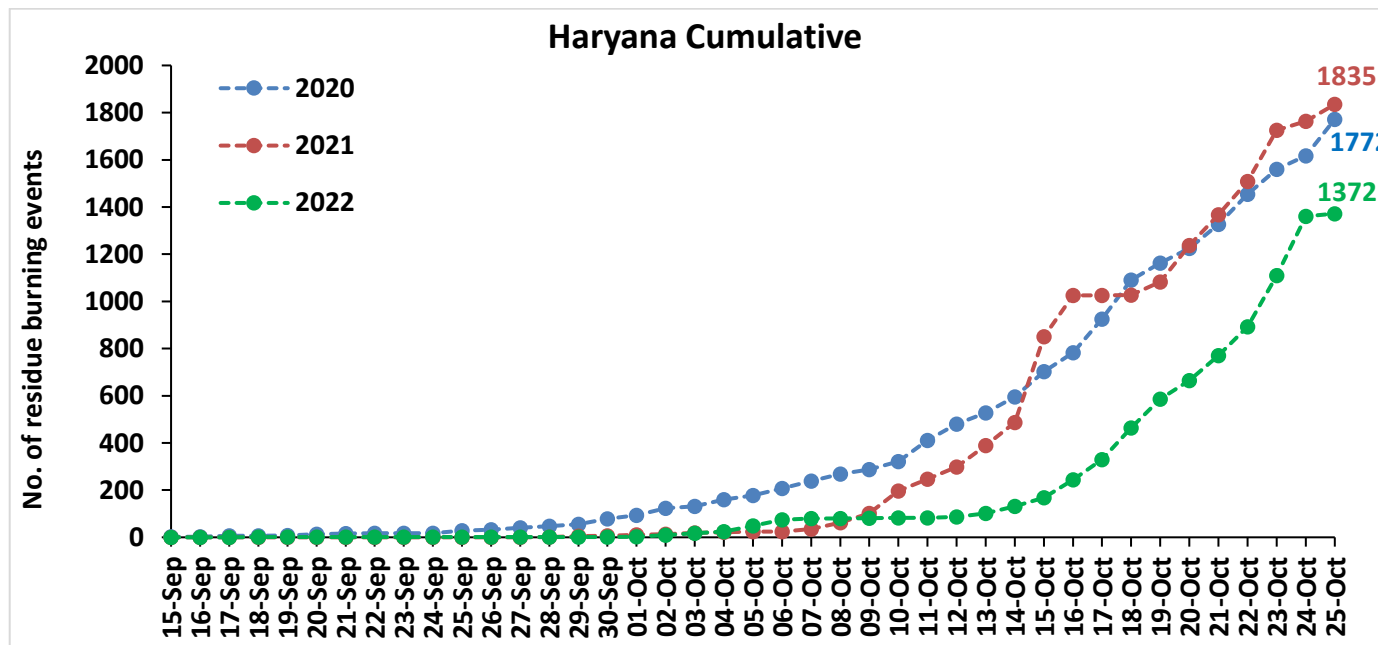
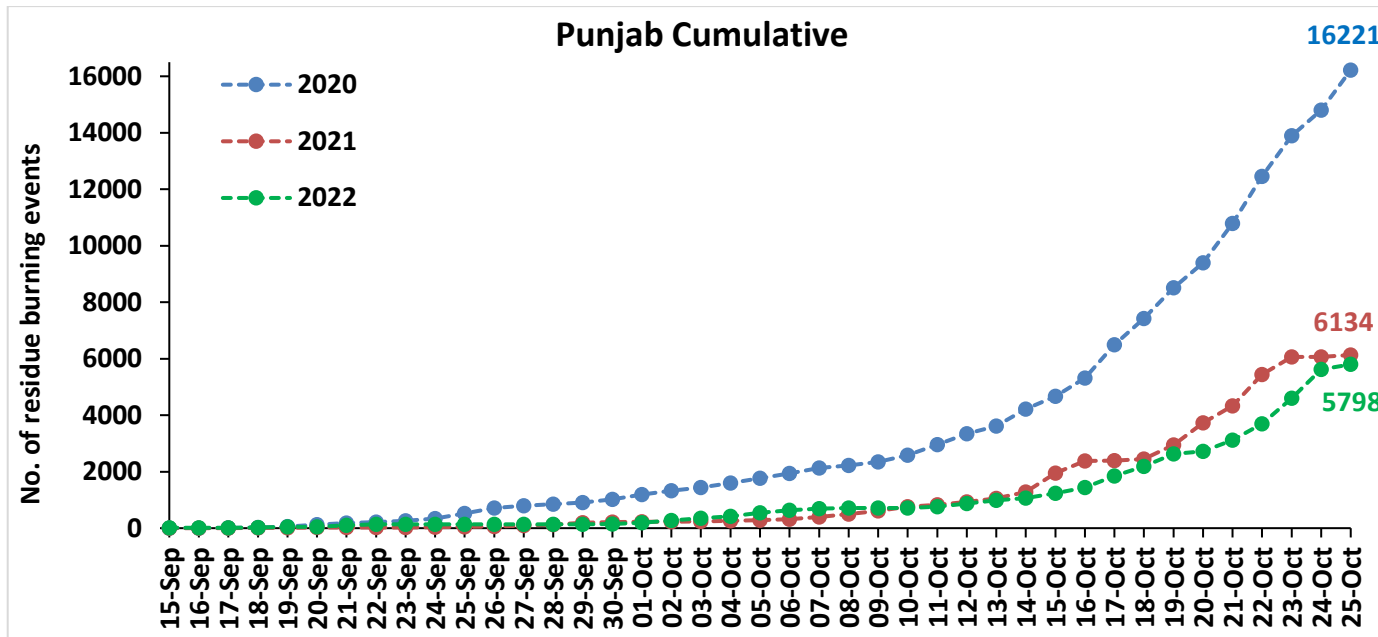


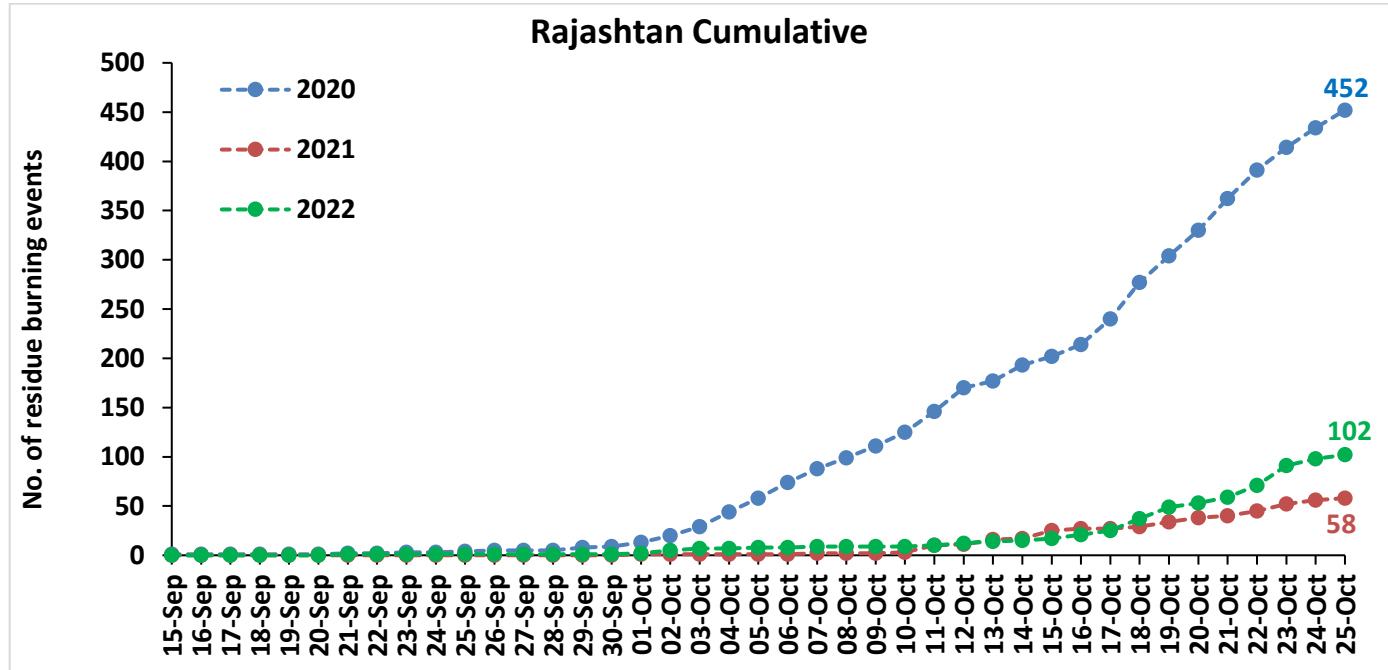
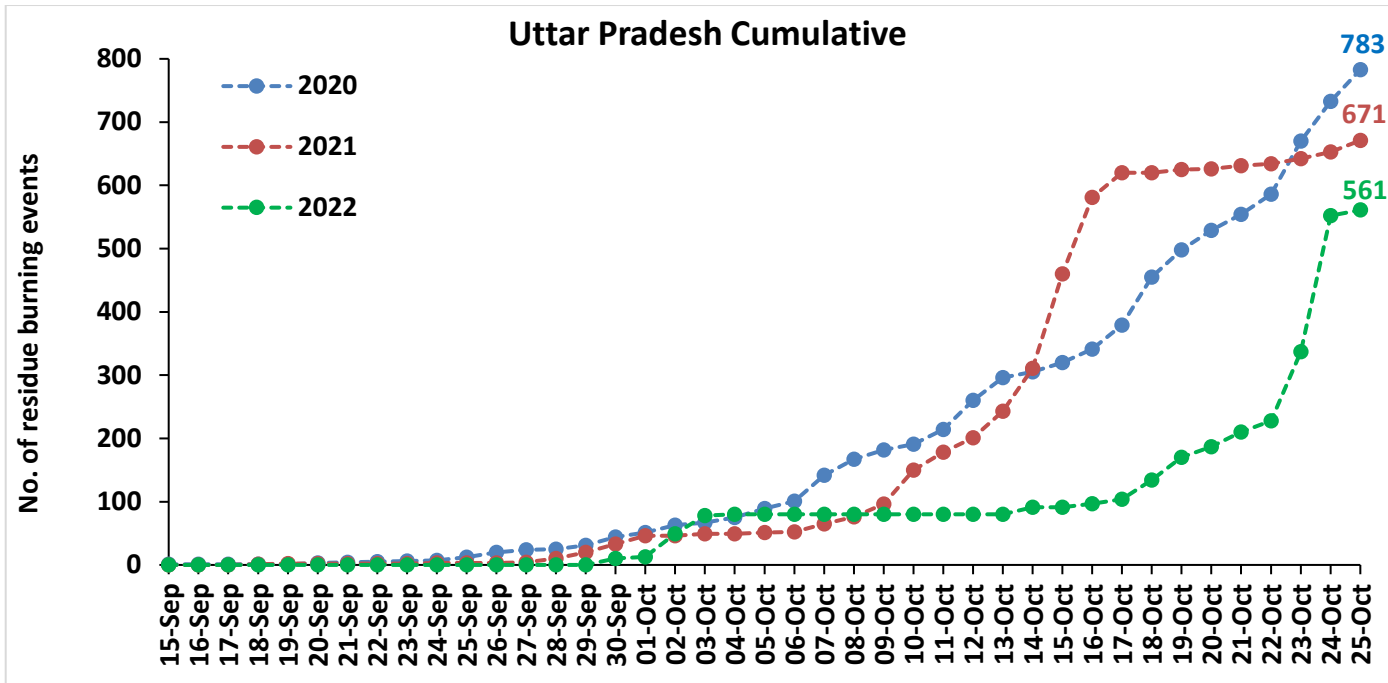
### Madhya Pradesh



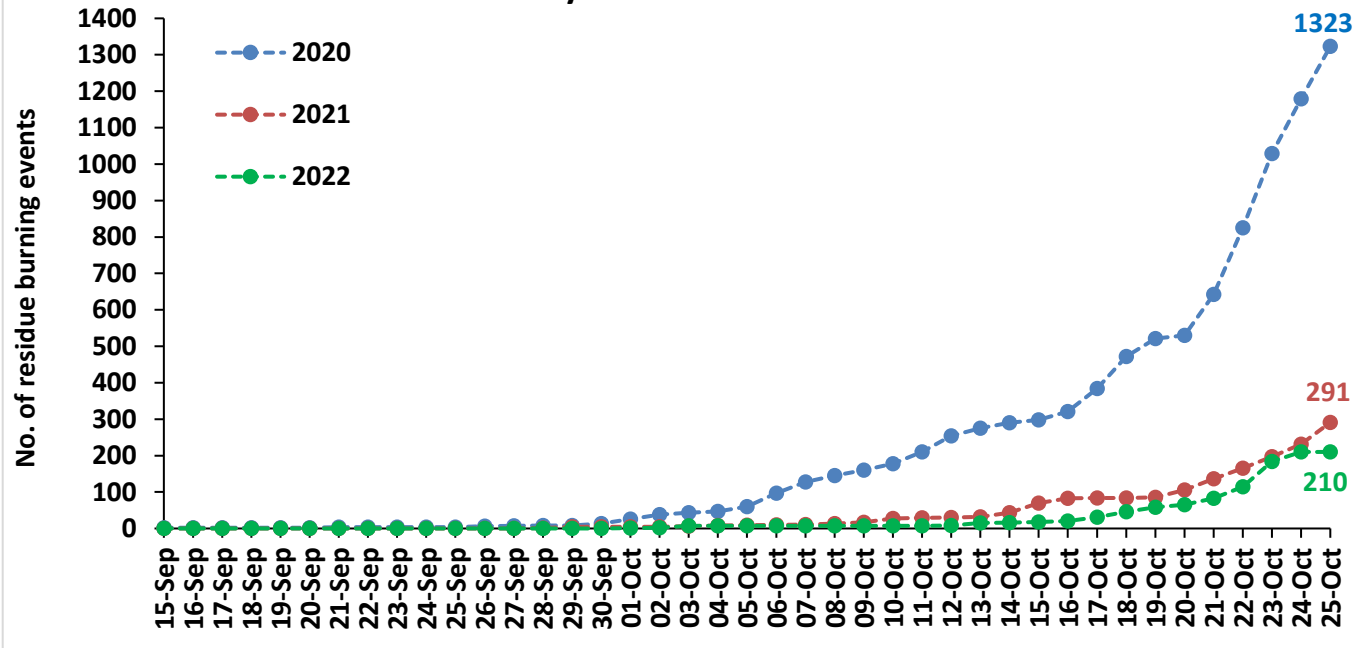


**Comparison of residue burning events in current year (2022) with previous years (2020 and 2021) for the study States**

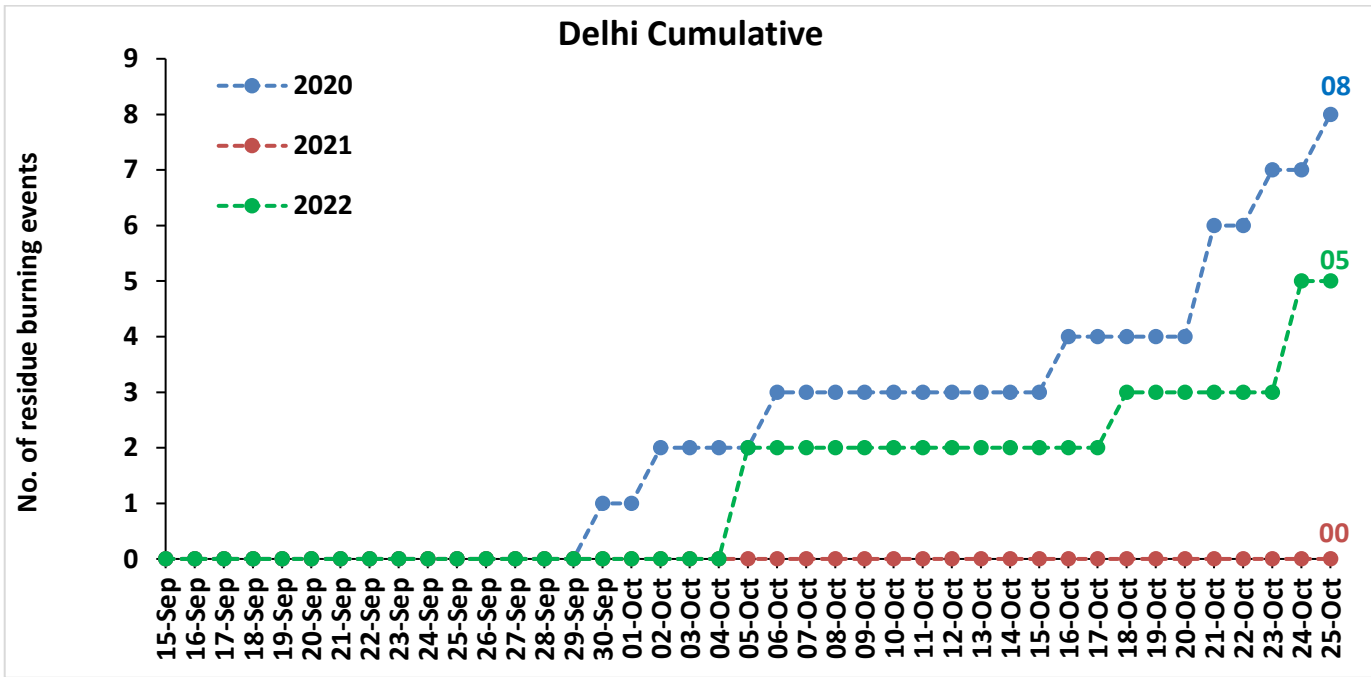




### Madhya Pradesh Cumulative

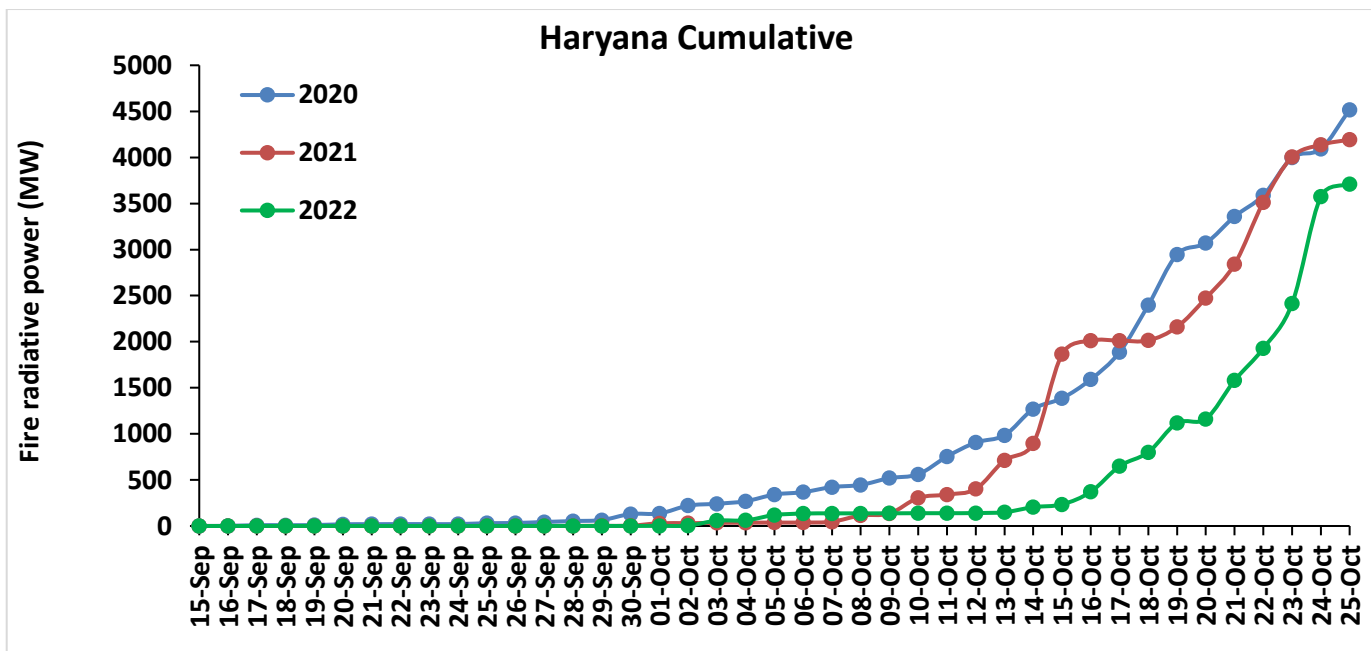
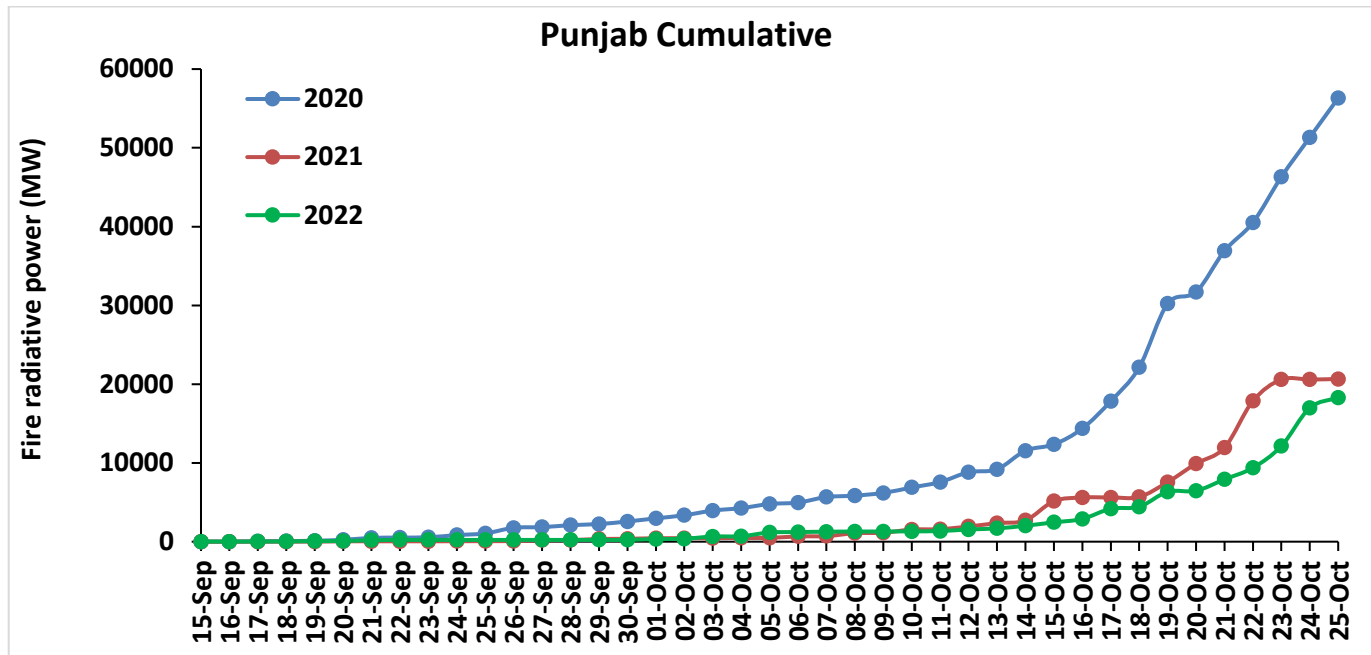


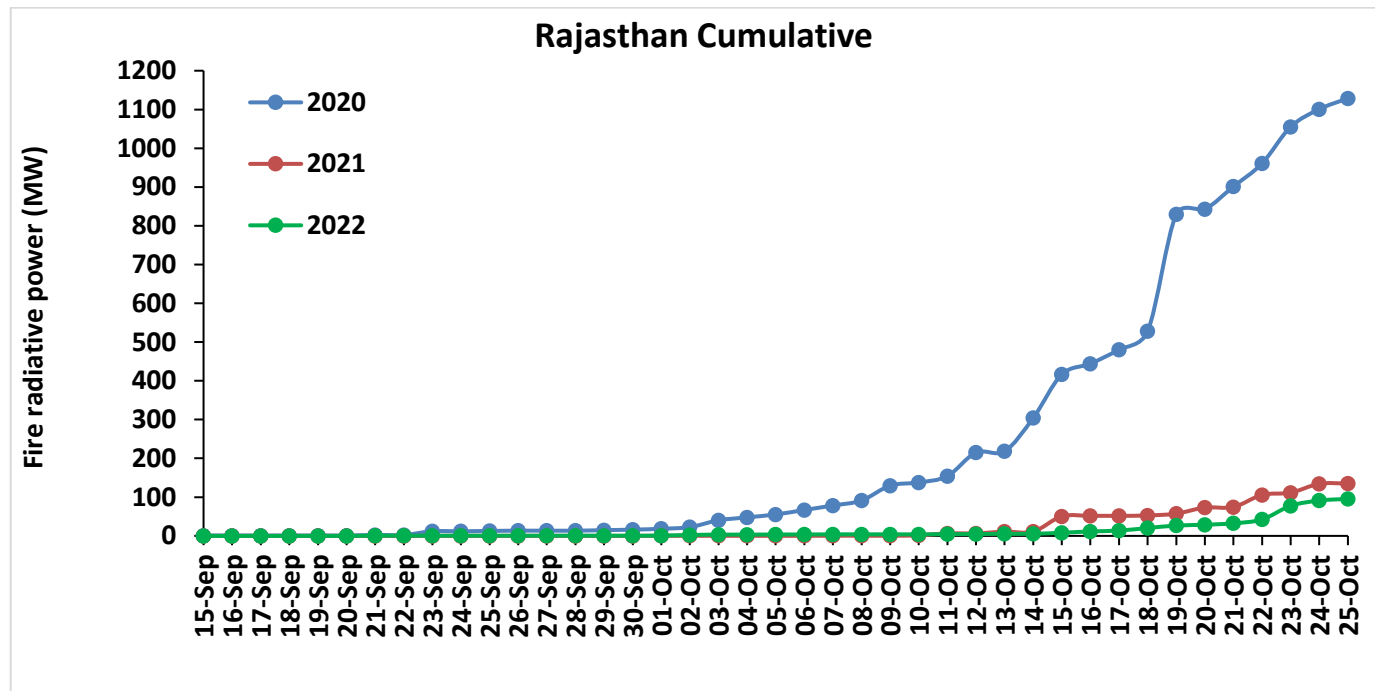
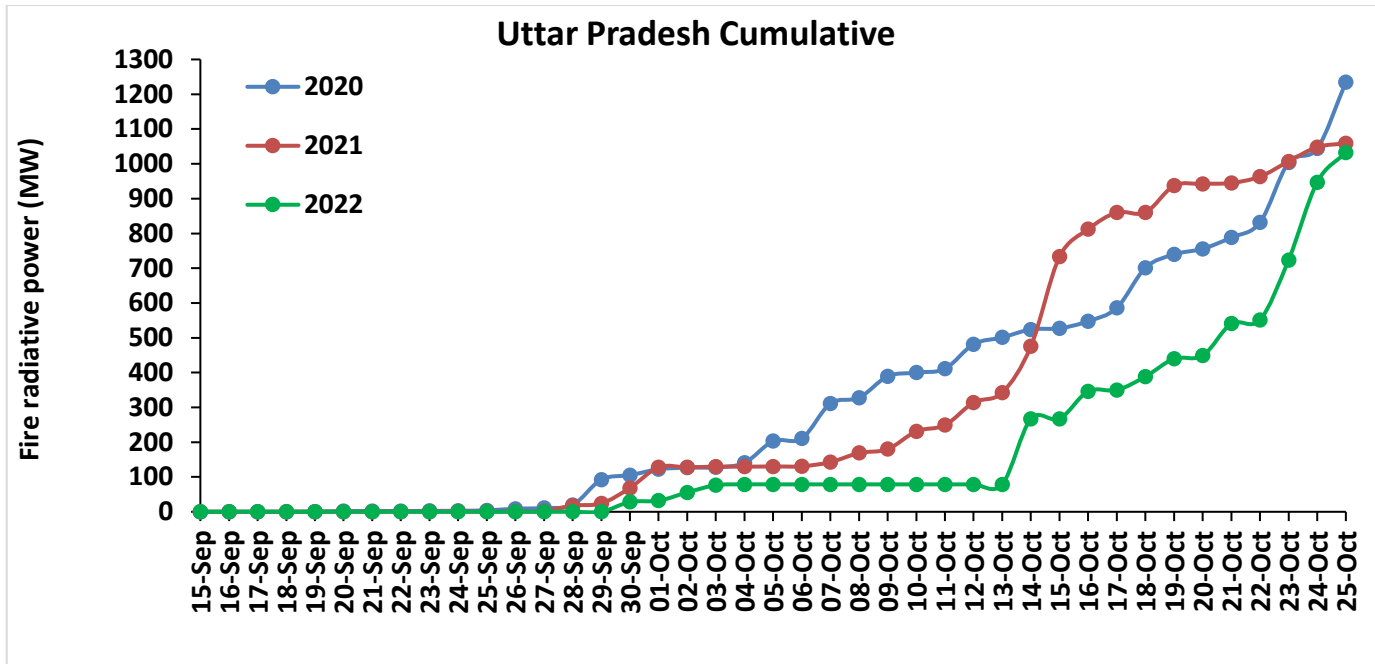
### Delhi Cumulative





**Comparison of residue burning fire power in current year (2022) with previous years (2021 and 2020) for the study States**

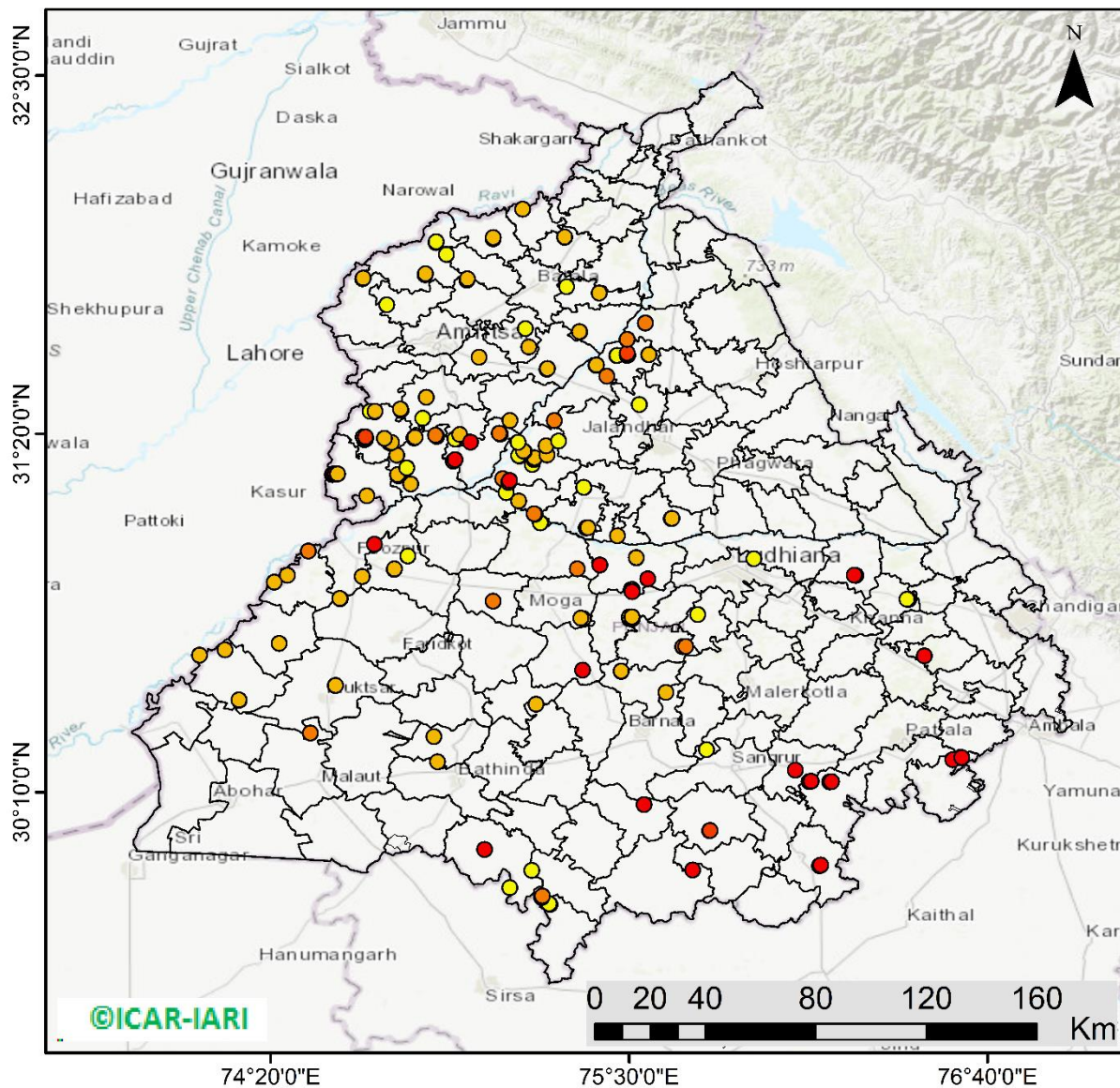






# Punjab

## RICE RESIDUE BURNING IN PUNJAB



**181** burning events detected in Punjab during (25th Oct 2022)

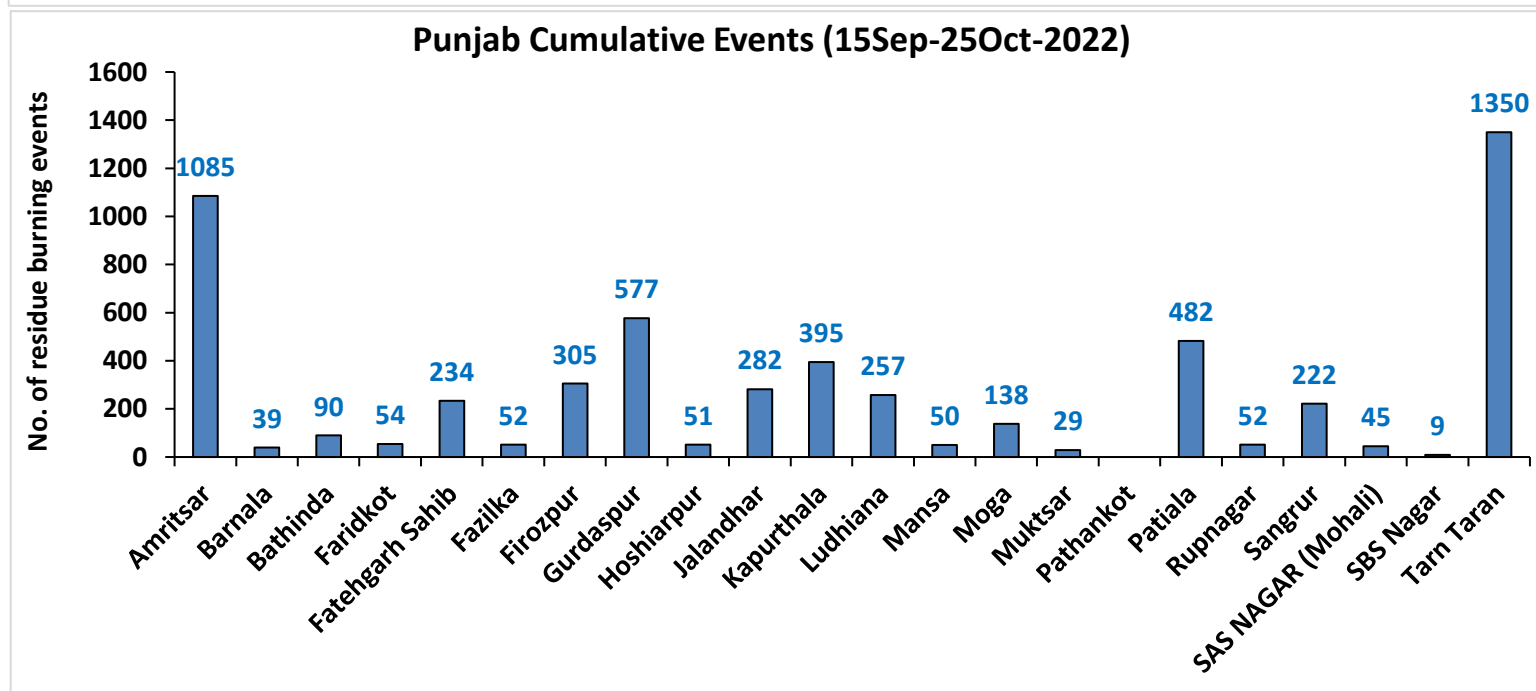
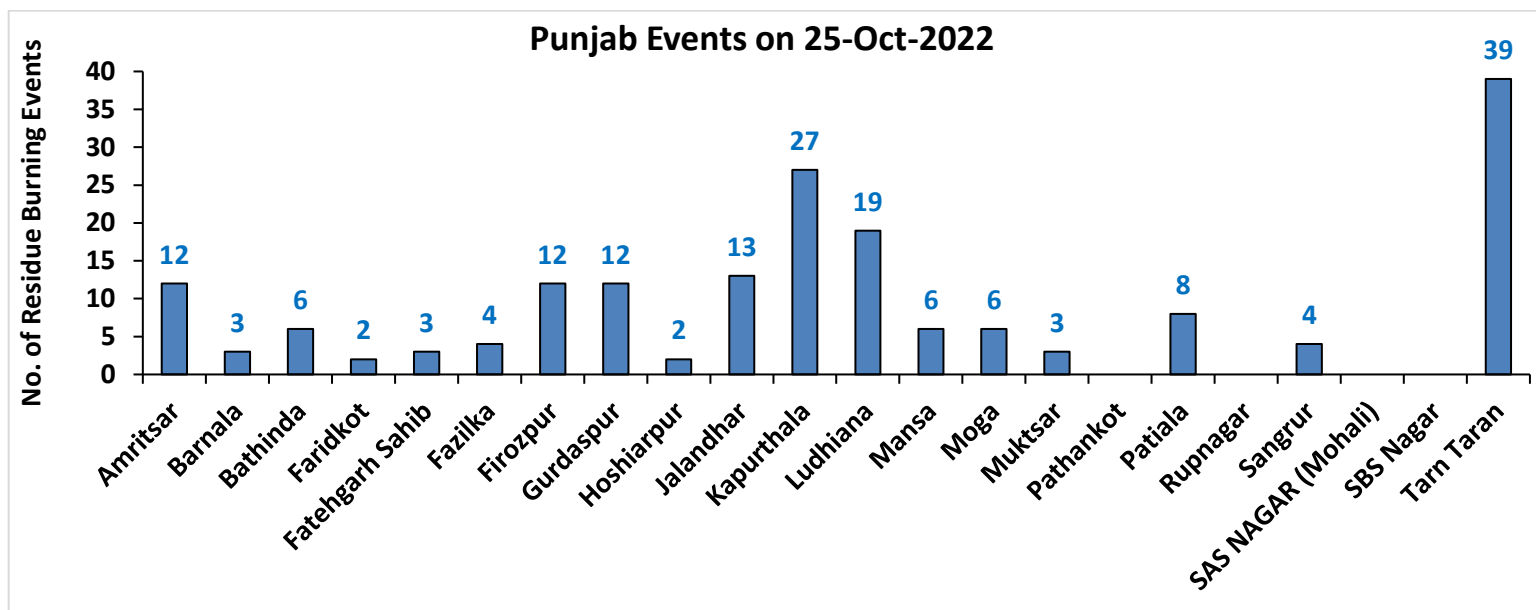
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

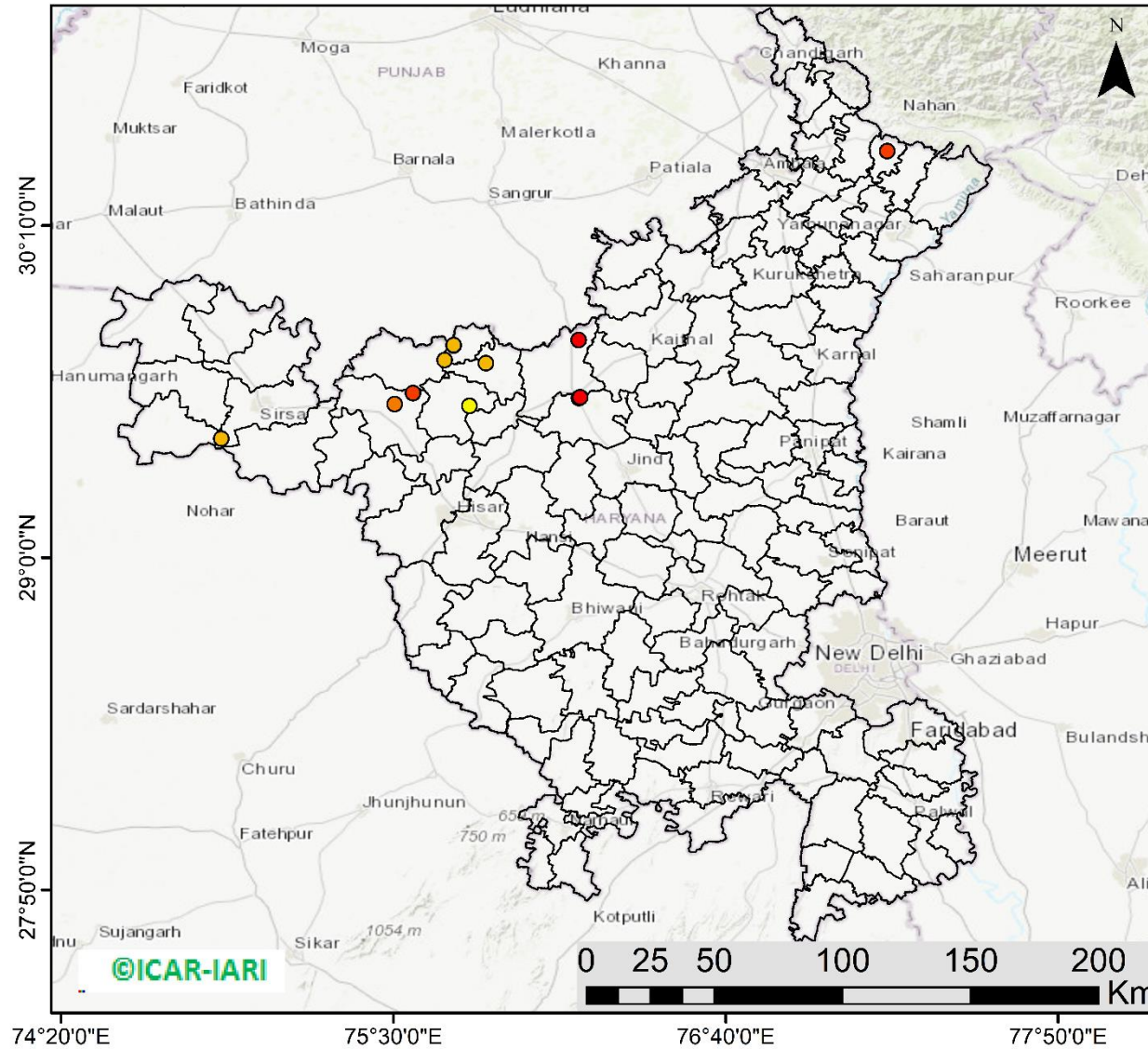
## District-wise cumulative number of residues burning events in Punjab (15Sep- 25Oct-2022)





# Haryana

## RICE RESIDUE BURNING IN HARYANA



**12** burning events detected in Haryana on (25th Oct 2022)

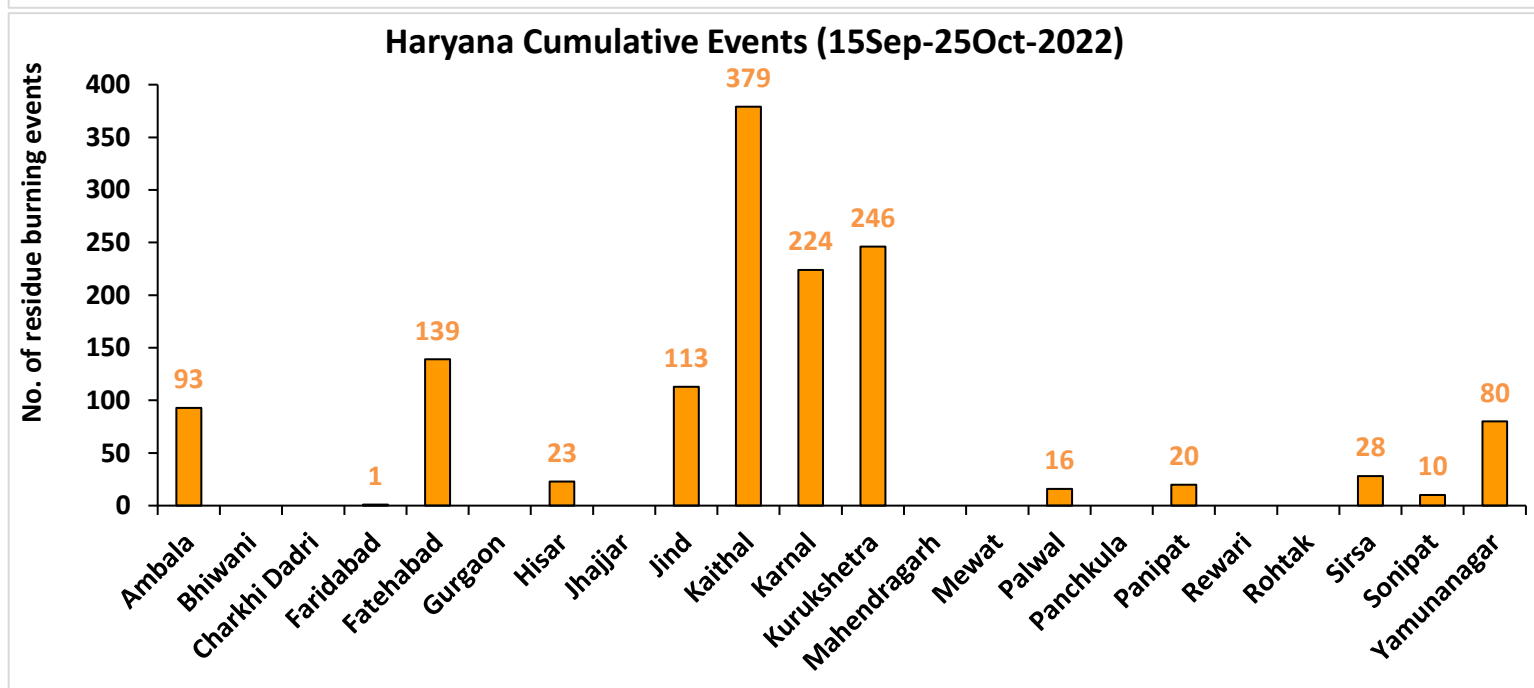
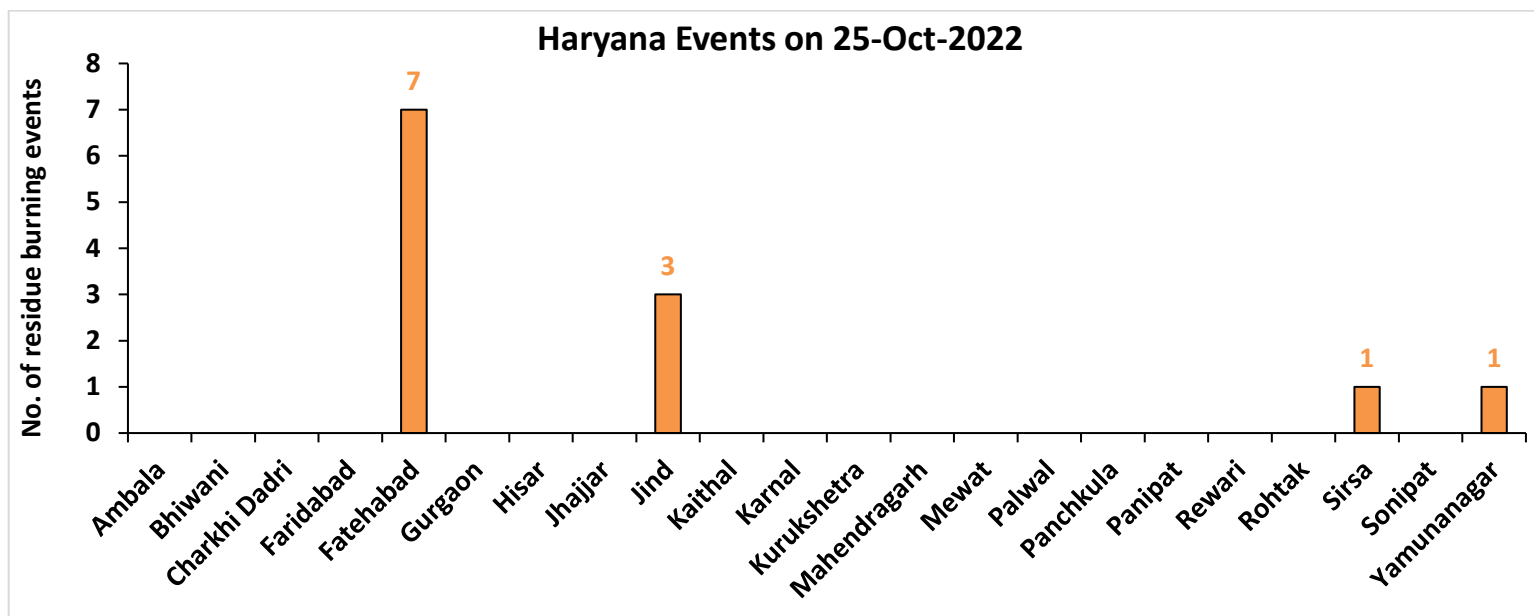
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



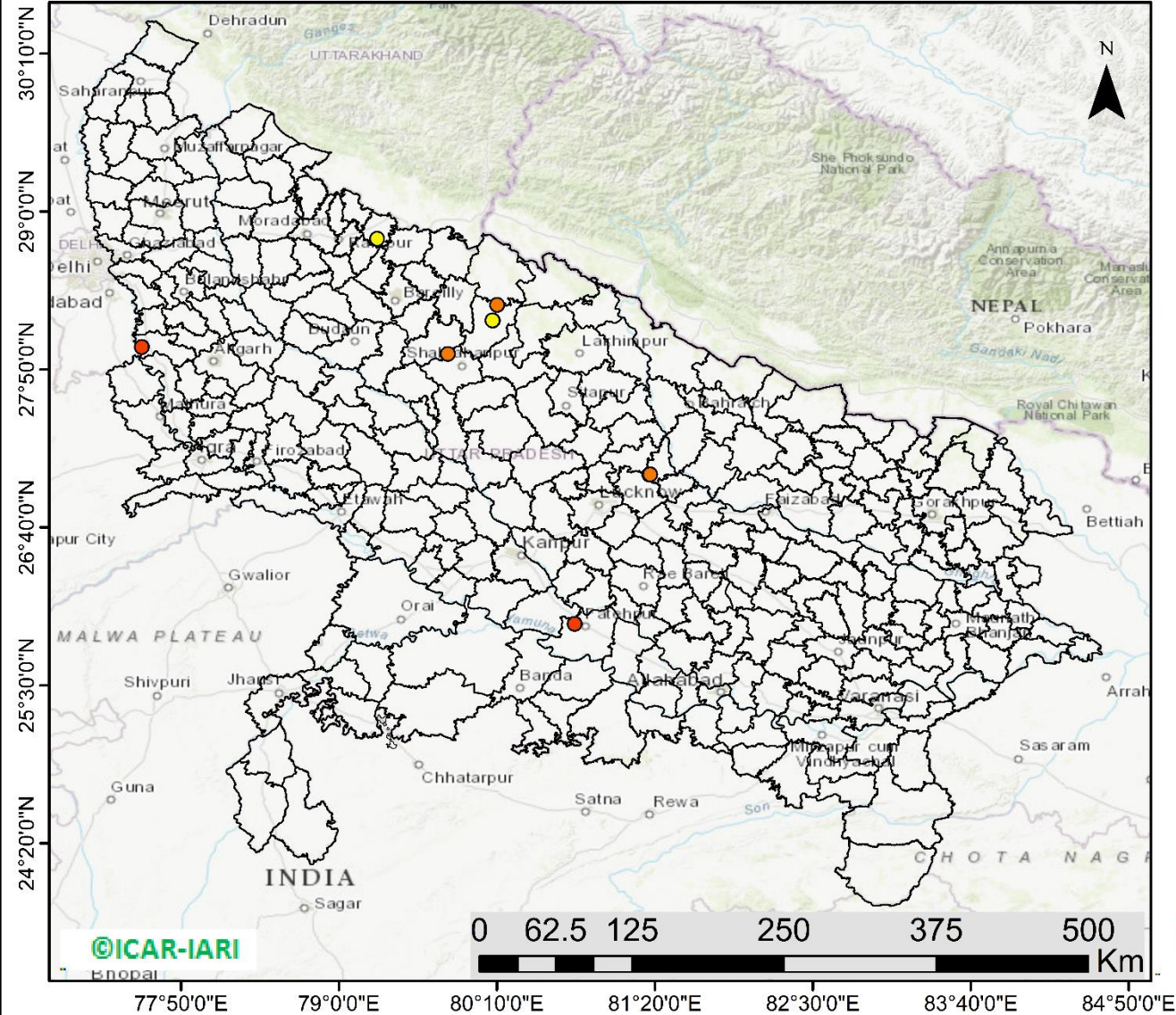
<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Haryana (15Sep- 25Oct-2022)



Uttar Pradesh

RICE RESIDUE BURNING IN UTTAR PRADESH



09 burning events detected in Uttar Pradesh on (25th Oct 2022)

Fire Intensity (W/m2)

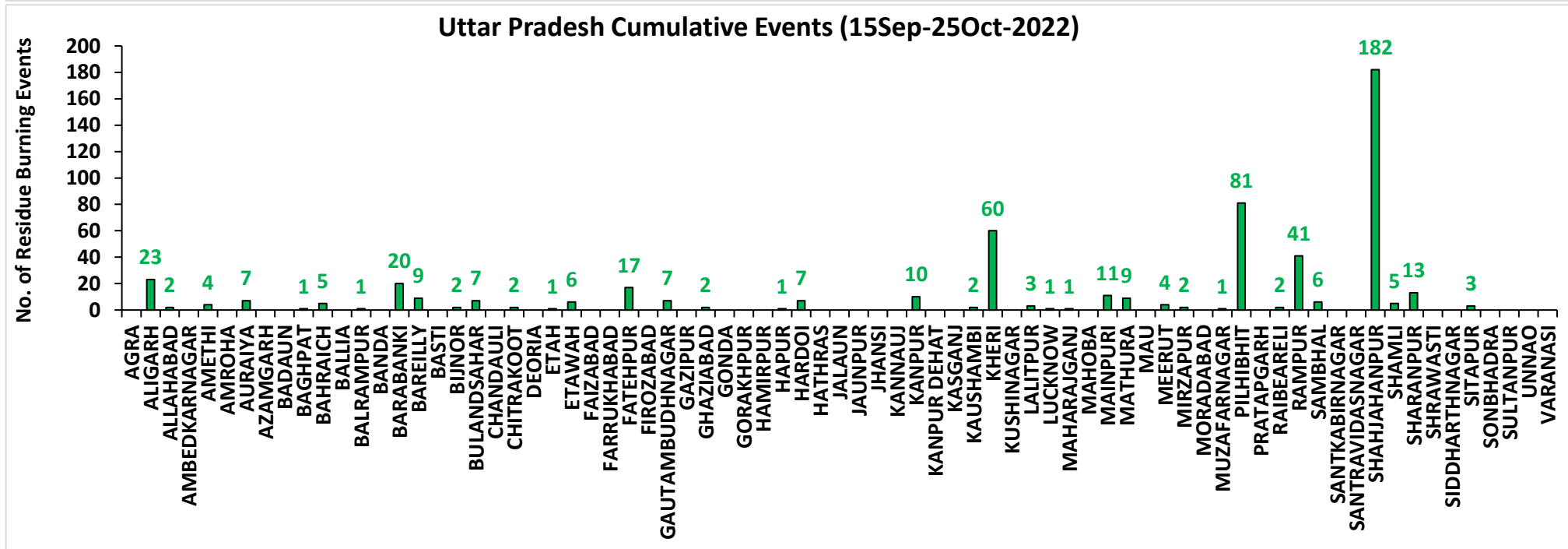
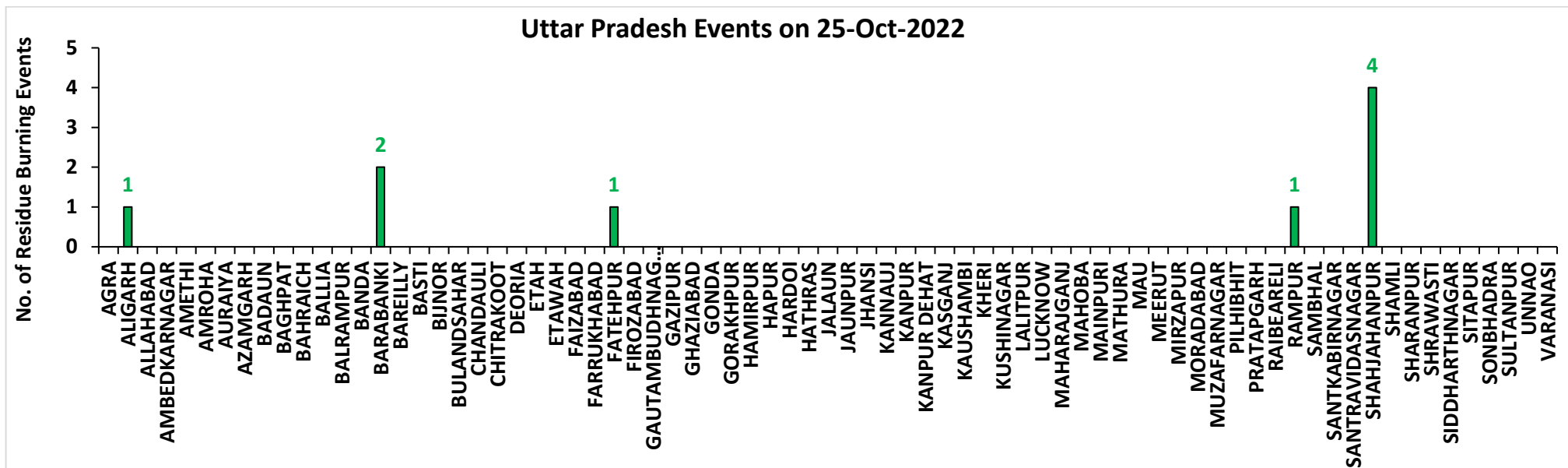
- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

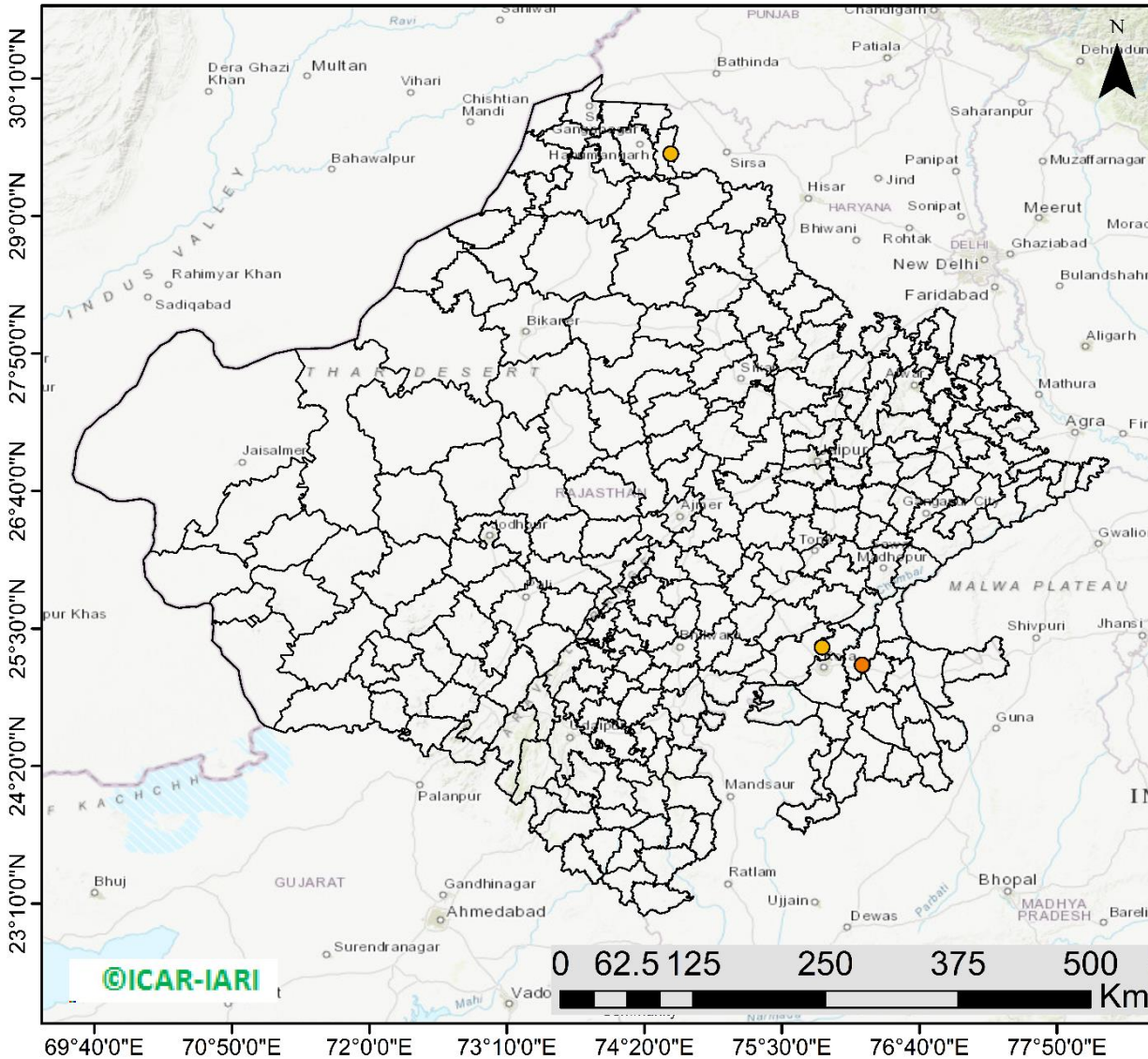


## District-wise cumulative number of residues burning events in Uttar Pradesh (15Sep- 25Oct -2022)



# Rajasthan

## RICE RESIDUE BURNING IN RAJASTHAN



**04** burning events  
detected in Rajasthan on  
(25th Oct 2022)

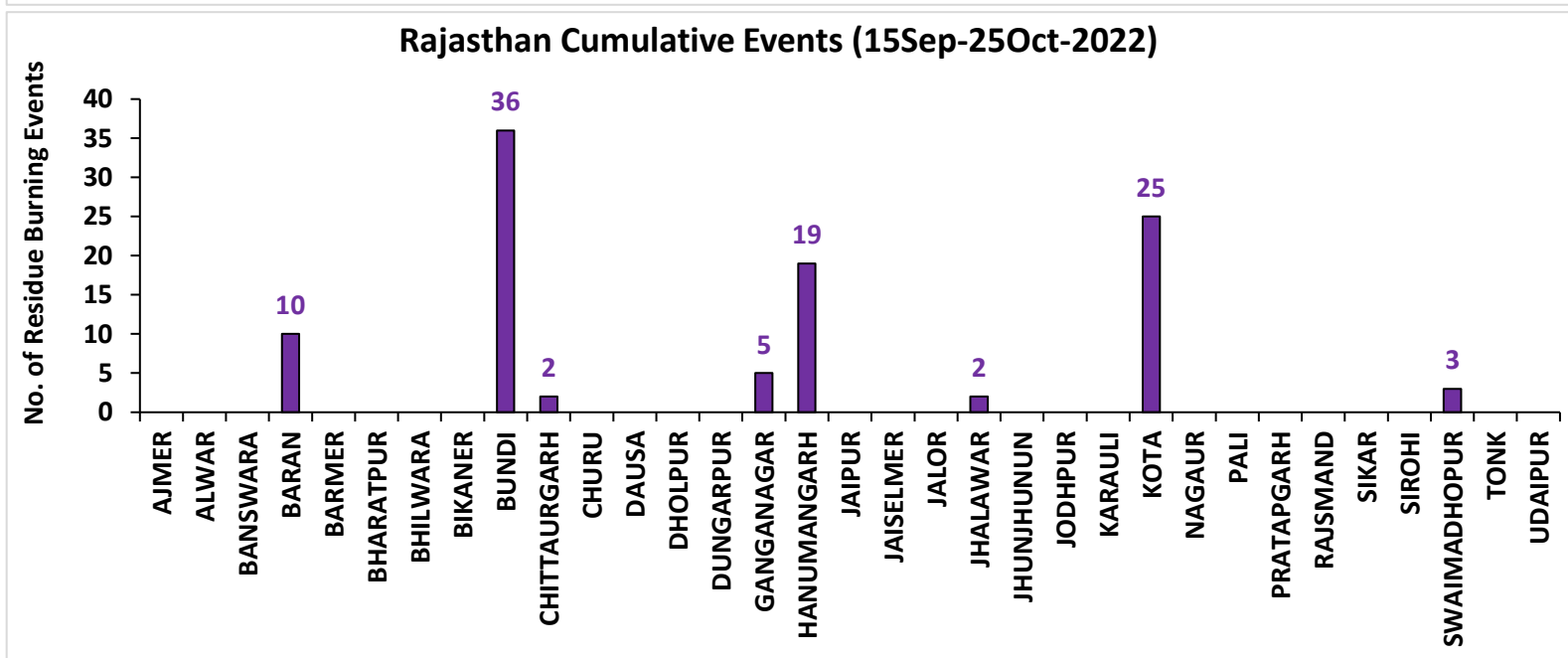
### Fire Intensity (W/m<sup>2</sup>)

- 0 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- >20



<http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

## District-wise cumulative number of residues burning events in Rajasthan (15Sep- 25Oct -2022)



**District-wise cumulative number of residues burning events detected in 2020 ,2021 and 2022**  
**(Period: 15 September-25 October)**

**(a) Punjab**

District	15 Sep-25 Oct 2022		
	2020	2021	2022
Amritsar	2367	947	1085
Barnala	100	47	39
Bathinda	225	75	90
Faridkot	844	301	54
Fatehgarh Sahib	536	286	234
Fazilka	246	86	52
Firozpur	2125	399	305
Gurdaspur	1295	394	577
Hoshiarpur	232	58	51
Jalandhar	400	274	282
Kapurthala	845	392	395
Ludhiana	456	389	257
Mansa	152	33	50
Moga	316	134	138
Muktsar	320	96	29
Pathankot	7	0	0
Patiala	1527	517	482
Rupnagar	78	46	52
Sangrur	595	149	222
SAS NAGAR (Mohali)	86	54	45
SBS Nagar	37	34	9
Tarn Taran	3432	1423	1350
<b>Total</b>	<b>16221</b>	<b>6134</b>	<b>5798</b>

**(b) Haryana**

District	15 Sep-25 Oct 2022		
	2020	2021	2022
AMBALA	222	87	93
BHIWANI	0	0	0
CHARKHI DADRI	0	0	0
FARIDABAD	1	1	1
FATEHABAD	129	116	139
GURGAON	0	0	0
HISAR	10	8	23
JHAJJAR	1	0	0
JIND	55	82	113
KAITHAL	378	513	379
KARNAL	437	568	224
KURUKSHETRA	348	325	246
MAHENDRAGARH	0	0	0
MEWAT	0	0	0
PALWAL	30	28	16
PANCHKULA	0	0	0
PANIPAT	13	22	20
REWARI	0	0	0
ROHTAK	2	0	0
SIRSA	35	17	28
SONIPAT	17	7	10
YAMUNANAGAR	94	61	80
<b>Total</b>	<b>1772</b>	<b>1835</b>	<b>1372</b>

(c) Uttar Pradesh

District	15 Sep-25 Oct 2022										
	2020	2021	2022	GAUTAMBUDHNAGAR	6	8	7	MUZAFARNAGAR	3	2	1
AGRA	2	0	0	GAZIPUR	0	0	0	PILHIBHIT	10	108	81
ALIGARH	55	21	23	GHAZIABAD	5	2	2	PRATAPGARH	4	0	0
ALLAHABAD	0	1	2	GONDA	0	0	0	RAIBEARELI	1	0	2
AMBEDKARNAGAR	0	0	0	GORAKHPUR	1	0	0	RAMPUR	60	50	41
AMETHI	0	1	4	HAMIRPUR	1	0	0	SAMBHAL	7	7	6
AMROHA	2	0	0	HAPUR	7	1	1	SANTKABIRNAGAR	0	0	0
AURAIYA	19	7	7	HARDOI	19	6	7	SANTRAVIDASNAGAR	0	0	0
AZAMGARH	0	0	0	HATHRAS	0	0	0	SHAHJAHANPUR	51	183	182
BADAUN	2	6	0	JALAUN	0	0	0	SHAMLI	21	15	5
BAGHPAT	4	1	1	JAUNPUR	0	0	0	SHARANPUR	46	20	13
BAHRAICH	23	2	5	JHANSI	30	6	0	SHRAWASTI	8	0	0
BALLIA	0	0	0	KANNAUJ	7	2	0	SIDDHARTHANAGAR	0	0	0
BALRAMPUR	5	1	1	KANPUR	5	7	10	SITAPUR	21	9	3
BANDA	0	0	0	KANPUR DEHAT	15	1	0	SONBHADRA	0	0	0
BARABANKI	23	21	20	KASGANJ	2	2	0	SULTANPUR	1	0	0
BAREILLY	25	15	9	KAUSHAMBI	17	3	2	UNNAO	7	1	0
BASTI	3	1	0	KHERI	52	55	60	VARANASI	1	0	0
BIJNOR	8	4	2	KUSHINAGAR	0	0	0	<b>Total</b>	<b>783</b>	<b>671</b>	<b>561</b>
BULANDSAHAR	18	2	7	LALITPUR	0	1	3				
CHANDAULI	0	0	0	LUCKNOW	4	0	1				
CHITRAKOOT	0	1	2	MAHARAJGANJ	0	0	1				
DEORIA	0	0	0	MAHOBA	12	0	0				
ETAH	12	6	1	MAINPURI	15	7	11				
ETAWAH	10	7	6	MATHURA	61	56	9				
FAIZABAD	3	0	0	MAU	0	0	0				
FARRUKHABAD	1	0	0	MEERUT	16	4	4				
FATEHPUR	26	6	17	MIRZAPUR	6	5	2				
FIROZABAD	12	4	0	MORADABAD	8	3	0				

**(d) Delhi**

District	15 Sep-25 Oct 2022		
	2020	2021	2022
CENTRAL	0	0	0
EAST	0	0	0
NEW DELHI	0	0	0
NORTH	2	0	5
NORTH EAST	0	0	0
NORTH WEST DELHI	3	0	0
SHAHADRA	0	0	0
SOUTH	1	0	0
SOUTH EAST	0	0	0
SOUTH WEST DELHI	0	0	0
WEST DELHI	2	0	0
<b>Total</b>	<b>8</b>	<b>0</b>	<b>5</b>

**(e) Rajasthan**

District	15 Sep-25 Oct 2022		
	2020	2021	2022
AJMER	2	0	0
ALWAR	2	0	0
BANSWARA	0	0	0
BARAN	109	0	10
BARMER	2	0	0
BHARATPUR	2	0	0
BHILWARA	4	0	0
BIKANER	1	0	0
BUNDI	26	3	36
CHITTAURGARH	0	2	2
CHURU	0	0	0
DAUSA	0	0	0
DHOLPUR	0	0	0
DUNGARPUR	0	0	0
GANGANAGAR	5	2	5
HANUMANGARH	222	48	19
JAIPUR	2	0	0
JAISELMER	2	0	0
JALOR	0	0	0
JHALAWAR	1	0	2
JHUNJHUNUN	1	0	0
JODHPUR	1	0	0
KARAULI	1	0	0
KOTA	43	3	25
NAGAUR	0	0	0
PALI	2	0	0
PRATAPGARH	4	0	0
RAJSMAND	0	0	0
SIKAR	0	0	0
SIROHI	1	0	0
SWAIMADHOPUR	16	0	3
TONK	3	0	0
UDAIPUR	0	0	0
<b>Total</b>	<b>452</b>	<b>58</b>	<b>102</b>

(f) Madhya Pradesh

District	15 Sep-25 Oct 2022						
	2020	2021	2022				
				PANNA	10	1	0
ALIRAJPUR	0	0	0	RAISEN	79	3	7
ANUPPUR	0	0	0	RAJGARH	7	1	3
ASHOKNAGAR	50	1	5	RATLAM	0	0	0
BALAGHAT	0	0	0	REWA	19	1	1
BARWANI	0	0	0	SAGAR	20	15	14
BETUL	4	1	1	SATNA	44	10	1
BHIND	16	1	7	SEHORE	21	10	25
BHOPAL	14	5	3	SEONI	149	103	26
BURHANPUR	0	0	0	SHAHDOL	0	0	0
CHHATARPUR	4	0	0	SHAJAPUR	5	0	0
CHHINDWARA	17	11	4	SHEOPUR	54	1	3
DAMOH	41	15	13	SHIVPURI	27	0	9
DATIA	136	8	11	SIDHI	0	0	0
DEWAS	3	0	0	SINGRAULI	0	0	0
DHAR	23	0	0	TIKAMGARH	1	0	0
DINDORI	0	0	0	UJJAIN	5	0	0
EAST NIMAR	10	5	4	UMARIA	0	0	0
GUNA	29	2	11	VIDESHA	74	13	16
GWALIOR	147	2	4	WEST NIMAR	16	1	0
HARDA	10	17	4	<b>Total</b>	<b>1323</b>	<b>291</b>	<b>210</b>
HOSHANGABAD	169	34	17				
INDORE	2	0	0				
JABALPUR	40	10	6				
JHABUA	0	0	0				
KATNI	22	0	0				
MANDLA	5	5	0				
MANDSAUR	3	0	0				
MORENA	23	5	3				
NARSHIMAPURA	24	10	12				
NIMACH	0	0	0				



**State-wise and date-wise number of paddy residue burning events detected in 2020, 2021 and 2022**  
**(Period: 15 September - 25 October 2022)**

**Number of Paddy Residue Burning Events Detected**

	Punjab			Haryana			Uttar Pradesh			Delhi			Rajasthan			Madhya Pradesh		
	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022	2020	2021	2022
15-Sep	5	0	14	2	0	0	1	0	0	0	0	0	1	0	0	2	0	0
16-Sep	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17-Sep	5	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18-Sep	17	9	7	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
19-Sep	30	5	18	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
20-Sep	67	8	10	6	0	0	2	0	0	0	0	0	0	0	0	0	0	0
21-Sep	54	0	56	2	0	0	1	0	0	0	0	0	1	0	1	2	0	0
22-Sep	34	0	30	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
23-Sep	49	0	3	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0
24-Sep	78	5	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
25-Sep	184	11	0	11	0	0	5	0	0	0	0	0	1	0	0	0	0	0
26-Sep	190	19	0	5	0	0	8	0	0	0	0	0	1	0	0	2	0	0
27-Sep	78	37	0	8	0	0	4	1	0	0	0	0	0	0	0	1	0	0
28-Sep	55	28	0	6	1	0	1	6	0	0	0	0	0	0	0	1	1	0
29-Sep	63	64	0	9	4	0	6	10	0	0	0	0	3	0	0	0	4	0
30-Sep	116	27	8	22	2	0	13	13	10	1	0	0	1	0	0	5	0	0
01-Oct	165	13	45	15	4	1	7	13	3	0	0	0	4	1	1	13	0	1
02-Oct	141	0	83	30	2	7	12	0	36	1	0	0	7	0	3	12	0	1
03-Oct	110	9	75	8	6	8	4	3	29	0	0	0	9	0	2	5	1	5
04-Oct	162	23	65	29	2	7	8	0	2	0	0	0	15	0	0	4	2	0
05-Oct	161	18	130	17	3	24	14	2	0	0	0	2	14	0	1	13	1	0
06-Oct	171	42	85	30	0	26	12	1	0	1	0	0	16	0	0	37	1	0
07-Oct	197	72	62	32	11	6	41	13	0	0	0	0	14	1	1	31	1	0
08-Oct	95	108	19	29	27	0	25	11	0	0	0	0	11	0	0	17	2	0



<b>09-Oct</b>	121	114	3	20	39	1	15	20	0	0	0	0	12	0	0	15	4	0
<b>10-Oct</b>	232	150	4	33	95	2	9	54	0	0	0	0	14	1	0	18	10	0
<b>11-Oct</b>	377	64	45	90	51	0	23	28	0	0	0	0	21	7	1	32	2	0
<b>12-Oct</b>	388	97	104	69	51	4	46	23	0	0	0	0	24	1	2	44	1	1
<b>13-Oct</b>	266	132	120	47	91	15	36	42	0	0	0	0	7	5	2	21	2	7
<b>14-Oct</b>	605	229	82	69	98	30	9	68	11	0	0	0	16	1	1	15	11	1
<b>15-Oct</b>	449	660	169	106	363	36	15	149	0	0	0	0	9	8	2	8	27	2
<b>16-Oct</b>	654	429	206	80	176	76	21	121	6	1	0	0	12	2	4	23	13	2
<b>17-Oct</b>	1172	14	403	143	0	86	38	39	7	0	0	0	26	0	4	63	1	11
<b>18-Oct</b>	938	57	342	166	1	134	76	0	30	0	0	1	37	2	12	88	0	15
<b>19-Oct</b>	1080	496	436	72	55	122	43	5	36	0	0	0	27	5	12	49	1	12
<b>20-Oct</b>	890	788	96	62	155	78	31	1	17	0	0	0	26	4	4	9	21	7
<b>21-Oct</b>	597	393	101	131	107	25	5	23	2	0	0	32	2	6	112	30	18	597
<b>22-Oct</b>	1665	1111	582	128	140	122	32	3	18	0	0	0	29	5	12	183	29	31
<b>23-Oct</b>	1438	620	902	106	218	217	84	8	109	1	0	0	23	7	20	204	32	70
<b>24-Oct</b>	911	0	1019	57	38	250	63	11	215	0	0	2	20	4	7	150	34	26
<b>25-Oct</b>	1416	76	181	155	71	12	50	18	9	1	0	0	18	2	4	144	60	0
<b>Total</b>	<b>16221</b>	<b>6134</b>	<b>5798</b>	<b>1772</b>	<b>1835</b>	<b>1372</b>	<b>783</b>	<b>671</b>	<b>561</b>	<b>8</b>	<b>0</b>	<b>5</b>	<b>452</b>	<b>58</b>	<b>102</b>	<b>1323</b>	<b>291</b>	<b>210</b>

### Details of residue burning events in Punjab on 25-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m2)
1	AMRITSAR	AJNALA	S-NPP	31.85080	74.83620	14:32:22	D	7.00
2	AMRITSAR	AJNALA	S-NPP	31.85440	74.83760	14:32:22	D	6.20
3	AMRITSAR	AJNALA	S-NPP	31.95540	74.87210	14:32:22	D	3.40
4	AMRITSAR	AJNALA	S-NPP	31.95860	74.87230	14:32:22	D	3.70
5	AMRITSAR	CHOGAWAN	S-NPP	31.75320	74.71160	14:32:22	D	3.90
6	AMRITSAR	CHOGAWAN	S-NPP	31.83760	74.63330	14:32:22	D	5.40
7	AMRITSAR	CHOGAWAN	S-NPP	31.84000	74.63500	14:32:22	D	8.00
8	AMRITSAR	JANDIALA GURU	S-NPP	31.58230	75.01200	14:32:22	D	9.30
9	AMRITSAR	RAYYA	S-NPP	31.54340	75.23290	14:32:22	D	7.00
10	AMRITSAR	RAYYA	S-NPP	31.54570	75.23430	14:32:22	D	7.70
11	AMRITSAR	TARSIKKA	S-NPP	31.61610	75.17400	14:32:22	D	5.40
12	AMRITSAR	TARSIKKA	S-NPP	31.67540	75.16270	14:32:22	D	2.60
13	BARNALA	BARNALA	S-NPP	30.49140	75.62020	14:32:22	D	7.00
14	BARNALA	MAHAL KALAN	S-NPP	30.55930	75.47460	14:32:22	D	10.70
15	BARNALA	MAHAL KALAN	S-NPP	30.56060	75.47480	14:32:22	D	10.00
16	BATHINDA	BATHINDA	S-NPP	30.26550	74.87690	14:32:22	D	5.60
17	BATHINDA	GONIANA MANDI	S-NPP	30.34740	74.86500	14:32:22	D	5.90
18	BATHINDA	PHUL	S-NPP	30.45300	75.19770	14:32:22	D	5.80
19	BATHINDA	TALWANDI SABO	S-NPP	29.85540	75.11210	14:32:22	D	4.50
20	BATHINDA	TALWANDI SABO	S-NPP	29.91160	75.18380	14:32:22	D	4.90
21	BATHINDA	TALWANDI SABO	AQUA	29.98000	75.03000	13:06:09	D	28.00
22	FARIDKOT	FARIDKOT	S-NPP	30.79600	74.56030	14:32:22	D	5.50
23	FARIDKOT	FARIDKOT	S-NPP	30.79720	74.55870	14:32:22	D	5.80
24	FATEHGARH SAHIB	KHAMANON	S-NPP	30.79400	76.41030	01:42:05	N	1.50
25	FATEHGARH SAHIB	KHAMANON	S-NPP	30.79450	76.40460	01:42:05	N	2.20
26	FATEHGARH SAHIB	KHERA	AQUA	30.61000	76.46100	13:06:09	D	26.30
27	FAZILKA	JALALABAD	S-NPP	30.46560	74.23130	14:32:22	D	3.70
28	FAZILKA	JALALABAD	S-NPP	30.46690	74.23040	14:32:22	D	5.10
29	FAZILKA	JALALABAD	S-NPP	30.61250	74.10220	14:32:22	D	7.80
30	FAZILKA	JALALABAD	S-NPP	30.62960	74.18510	14:32:22	D	6.40

31	FIROZPUR	FIROZPUR	S-NPP	30.86840	74.63180	14:32:22	D	5.70
32	FIROZPUR	FIROZPUR	S-NPP	30.97340	74.67170	14:32:22	D	22.10
33	FIROZPUR	FIROZPUR	AQUA	31.02600	74.65900	13:06:09	D	123.90
34	FIROZPUR	GHALL KHURD	S-NPP	30.89150	74.73610	14:32:22	D	11.80
35	FIROZPUR	GHALL KHURD	S-NPP	30.89350	74.73670	14:32:22	D	6.90
36	FIROZPUR	GHALL KHURD	S-NPP	30.93520	74.78010	14:32:22	D	4.60
37	FIROZPUR	GURUHAR SAHAI	S-NPP	30.65070	74.36150	14:32:22	D	6.10
38	FIROZPUR	GURUHAR SAHAI	AQUA	30.68000	74.46100	13:06:09	D	117.70
39	FIROZPUR	GURUHAR SAHAI	AQUA	30.69000	74.46200	13:06:09	D	115.50
40	FIROZPUR	MAMDOT	S-NPP	30.85010	74.34560	14:32:22	D	6.30
41	FIROZPUR	MAMDOT	S-NPP	30.87250	74.38800	14:32:22	D	8.90
42	FIROZPUR	MAMDOT	S-NPP	30.95120	74.45640	14:32:22	D	12.60
43	GURDASPUR	DERA BABA NANAK	S-NPP	31.96780	75.05780	14:32:22	D	8.30
44	GURDASPUR	DERA BABA NANAK	S-NPP	31.97210	75.05790	14:32:22	D	7.90
45	GURDASPUR	DHARIWAL	S-NPP	31.97250	75.29080	14:32:22	D	2.60
46	GURDASPUR	DHARIWAL	S-NPP	31.97410	75.29080	14:32:22	D	8.30
47	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.83330	74.97280	14:32:22	D	11.30
48	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.83770	74.97410	14:32:22	D	9.20
49	GURDASPUR	FATEHGARH CHURIAN	S-NPP	31.91700	74.90560	14:32:22	D	4.80
50	GURDASPUR	KALANAUR	S-NPP	32.06430	75.15400	14:32:22	D	9.30
51	GURDASPUR	QADIAN	S-NPP	31.79160	75.40280	14:32:22	D	5.40
52	GURDASPUR	QADIAN	S-NPP	31.81170	75.29670	14:32:22	D	5.00
53	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.66490	75.33950	14:32:22	D	3.60
54	GURDASPUR	SRI HARGOBINDPUR	S-NPP	31.66580	75.33860	14:32:22	D	6.30
55	HOSHIARPUR	TANDA	S-NPP	31.69350	75.55290	14:32:22	D	8.60
56	HOSHIARPUR	TANDA	S-NPP	31.69370	75.55360	14:32:22	D	11.20
57	JALANDHAR	JALANDHAR WEST	S-NPP	31.42820	75.53400	14:32:22	D	3.30
58	JALANDHAR	JALANDHAR WEST	S-NPP	31.42830	75.53320	14:32:22	D	5.00
59	JALANDHAR	LOHIAN	S-NPP	31.07130	75.19440	14:32:22	D	9.30
60	JALANDHAR	LOHIAN	S-NPP	31.07280	75.19130	14:32:22	D	12.70
61	JALANDHAR	LOHIAN	S-NPP	31.11430	75.14110	14:32:22	D	8.50
62	JALANDHAR	LOHIAN	S-NPP	31.14150	75.09980	14:32:22	D	4.10
63	JALANDHAR	LOHIAN	S-NPP	31.15780	75.35360	14:32:22	D	6.00

64	JALANDHAR	LOHIAN	S-NPP	31.15910	75.35260	14:32:22	D	3.60
65	JALANDHAR	MEHATPUR	S-NPP	31.00100	75.46200	14:32:22	D	5.50
66	JALANDHAR	NUR MAHAL	S-NPP	31.05710	75.63740	14:32:22	D	5.30
67	JALANDHAR	NUR MAHAL	S-NPP	31.05800	75.63990	14:32:22	D	8.00
68	JALANDHAR	SHAHKOT	S-NPP	31.02670	75.36050	14:32:22	D	6.60
69	JALANDHAR	SHAHKOT	S-NPP	31.02760	75.36620	14:32:22	D	8.10
70	KAPURTHALA	DHILWAN	S-NPP	31.37620	75.25660	14:32:22	D	14.30
71	KAPURTHALA	KAPURTHALA	S-NPP	31.30960	75.27080	14:32:22	D	4.20
72	KAPURTHALA	NADALA	S-NPP	31.52050	75.42760	14:32:22	D	11.90
73	KAPURTHALA	NADALA	S-NPP	31.55590	75.39250	14:32:22	D	6.90
74	KAPURTHALA	NADALA	S-NPP	31.55730	75.39410	14:32:22	D	6.80
75	KAPURTHALA	NADALA	S-NPP	31.58730	75.45990	14:32:22	D	6.60
76	KAPURTHALA	NADALA	S-NPP	31.58830	75.46140	14:32:22	D	4.70
77	KAPURTHALA	NADALA	S-NPP	31.58840	75.49430	14:32:22	D	19.60
78	KAPURTHALA	NADALA	S-NPP	31.58930	75.49580	14:32:22	D	30.70
79	KAPURTHALA	NADALA	S-NPP	31.59060	75.56350	14:32:22	D	10.30
80	KAPURTHALA	NADALA	S-NPP	31.59110	75.56520	14:32:22	D	9.20
81	KAPURTHALA	NADALA	S-NPP	31.59570	75.49410	14:32:22	D	19.60
82	KAPURTHALA	NADALA	S-NPP	31.64050	75.49430	14:32:22	D	6.00
83	KAPURTHALA	NADALA	S-NPP	31.64060	75.49380	14:32:22	D	12.60
84	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.18690	75.08890	14:32:22	D	13.50
85	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.23320	75.18490	14:32:22	D	4.00
86	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.24930	75.19040	14:32:22	D	3.40
87	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.25510	75.19240	14:32:22	D	6.50
88	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26050	75.14320	14:32:22	D	6.20
89	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26220	75.14090	14:32:22	D	4.20
90	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.26380	75.23320	14:32:22	D	6.90
91	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.27550	75.15910	14:32:22	D	7.00
92	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.27710	75.15670	14:32:22	D	6.20
93	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.29380	75.23000	14:32:22	D	7.30
94	KAPURTHALA	SULTANPUR LODHI	S-NPP	31.30530	75.13940	14:32:22	D	4.40
95	KAPURTHALA	SULTANPUR LODHI	AQUA	31.17500	75.10800	13:06:09	D	42.50
96	KAPURTHALA	SULTANPUR LODHI	AQUA	31.18100	75.11100	13:06:09	D	39.90

97	LUDHIANA	JAGRAON	S-NPP	30.73070	75.50180	14:32:22	D	6.40
98	LUDHIANA	JAGRAON	S-NPP	30.73090	75.51020	14:32:22	D	11.90
99	LUDHIANA	JAGRAON	S-NPP	30.73690	75.50120	14:32:22	D	8.20
100	LUDHIANA	JAGRAON	S-NPP	30.73720	75.50960	14:32:22	D	8.20
101	LUDHIANA	JAGRAON	S-NPP	30.82570	75.50700	14:32:22	D	10.40
102	LUDHIANA	JAGRAON	S-NPP	30.82630	75.51000	14:32:22	D	7.10
103	LUDHIANA	JAGRAON	AQUA	30.81900	75.51000	13:06:09	D	35.40
104	LUDHIANA	LUDHIANA-1	S-NPP	30.92640	75.90630	03:21:39	N	1.60
105	LUDHIANA	MACHHIWARA	AQUA	30.87200	76.23800	13:06:09	D	23.20
106	LUDHIANA	MACHHIWARA	AQUA	30.87300	76.23300	13:06:09	D	27.70
107	LUDHIANA	PAKHOWAL	S-NPP	30.74450	75.72350	14:32:22	D	4.80
108	LUDHIANA	RAIKOT	S-NPP	30.63990	75.67480	14:32:22	D	10.00
109	LUDHIANA	RAIKOT	S-NPP	30.64010	75.68340	14:32:22	D	10.00
110	LUDHIANA	RAIKOT	S-NPP	30.64040	75.67590	14:32:22	D	10.60
111	LUDHIANA	RAIKOT	S-NPP	30.64070	75.68460	14:32:22	D	14.70
112	LUDHIANA	SIDHWAN BET	S-NPP	30.92900	75.52370	14:32:22	D	6.70
113	LUDHIANA	SIDHWAN BET	S-NPP	30.92980	75.52360	14:32:22	D	5.60
114	LUDHIANA	SIDHWAN BET	AQUA	30.86100	75.56100	13:06:09	D	32.70
115	LUDHIANA	SIDHWAN BET	AQUA	30.90600	75.40500	13:06:09	D	25.30
116	MANSA	BHIKHI	AQUA	30.12600	75.54900	13:06:09	D	22.50
117	MANSA	BUDHLADA	AQUA	29.91300	75.70700	13:06:09	D	27.10
118	MANSA	JHUNIR	S-NPP	29.82370	75.21560	14:32:22	D	6.60
119	MANSA	JHUNIR	S-NPP	29.82820	75.21790	14:32:22	D	11.50
120	MANSA	SARDULGARH	S-NPP	29.80060	75.24280	14:32:22	D	3.80
121	MANSA	SARDULGARH	S-NPP	29.80320	75.24030	14:32:22	D	4.30
122	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	30.89360	75.33180	14:32:22	D	13.90
123	MOGA	KOT ISE KHAN AT DHARAMKOT	S-NPP	31.04320	75.21150	14:32:22	D	3.10
124	MOGA	MOGA-1	S-NPP	30.73150	75.35110	14:32:22	D	9.10
125	MOGA	MOGA-1	S-NPP	30.73320	75.34300	14:32:22	D	9.90
126	MOGA	MOGA-2	S-NPP	30.78830	75.05760	14:32:22	D	10.40
127	MOGA	NIHAL SINGH	AQUA	30.56400	75.34900	13:06:09	D	22.30
128	MUKTSAR	MALOUT	S-NPP	30.35900	74.46310	14:32:22	D	14.70
129	MUKTSAR	MUKTSAR	S-NPP	30.51350	74.54420	14:32:22	D	9.00

130	MUKTSAR	MUKTSAR	S-NPP	30.51410	74.54480	14:32:22	D	5.90
131	PATIALA	BHUNARHERI	AQUA	30.27200	76.55400	13:06:09	D	20.50
132	PATIALA	BHUNARHERI	AQUA	30.27900	76.58300	13:06:09	D	20.40
133	PATIALA	PATRAM	AQUA	29.92700	76.12000	13:06:09	D	48.00
134	PATIALA	PATRAM	AQUA	29.92900	76.12400	13:06:09	D	43.40
135	PATIALA	SAMANA	AQUA	30.20000	76.15300	13:06:09	D	40.80
136	PATIALA	SAMANA	AQUA	30.20100	76.08600	13:06:09	D	35.30
137	PATIALA	SAMANA	AQUA	30.20100	76.15900	13:06:09	D	36.00
138	PATIALA	SAMANA	AQUA	30.20200	76.09300	13:06:09	D	33.40
139	SANGRUR	BHAWANIGARH	AQUA	30.23800	76.04100	13:06:09	D	26.30
140	SANGRUR	DHURI	S-NPP	30.30490	75.75210	14:32:22	D	4.70
141	SANGRUR	SUNAM	S-NPP	30.04090	75.76230	14:32:22	D	17.10
142	SANGRUR	SUNAM	S-NPP	30.04160	75.76380	14:32:22	D	16.60
143	TARN TARAN	BHIKHIWIND	S-NPP	31.26340	74.74430	14:32:22	D	6.90
144	TARN TARAN	BHIKHIWIND	S-NPP	31.30280	74.72350	14:32:22	D	14.00
145	TARN TARAN	BHIKHIWIND	S-NPP	31.30480	74.71960	14:32:22	D	6.50
146	TARN TARAN	BHIKHIWIND	S-NPP	31.30510	74.72730	14:32:22	D	6.50
147	TARN TARAN	BHIKHIWIND	S-NPP	31.31410	74.63870	14:32:22	D	18.20
148	TARN TARAN	BHIKHIWIND	S-NPP	31.31590	74.64260	14:32:22	D	15.50
149	TARN TARAN	BHIKHIWIND	S-NPP	31.31830	74.70380	14:32:22	D	7.10
150	TARN TARAN	BHIKHIWIND	S-NPP	31.32110	74.63840	14:32:22	D	18.20
151	TARN TARAN	BHIKHIWIND	S-NPP	31.32260	74.63480	14:32:22	D	12.50
152	TARN TARAN	BHIKHIWIND	S-NPP	31.32290	74.64240	14:32:22	D	19.90
153	TARN TARAN	BHIKHIWIND	S-NPP	31.40420	74.67170	14:32:22	D	7.70
154	TARN TARAN	BHIKHIWIND	S-NPP	31.40600	74.65790	14:32:22	D	4.50
155	TARN TARAN	BHIKHIWIND	S-NPP	31.40660	74.67310	14:32:22	D	9.30
156	TARN TARAN	CHOHLA SAHIB	S-NPP	31.33200	75.08140	14:32:22	D	11.00
157	TARN TARAN	CHOHLA SAHIB	S-NPP	31.33490	75.07750	14:32:22	D	12.60
158	TARN TARAN	CHOHLA SAHIB	AQUA	31.24400	74.92800	13:06:09	D	24.60
159	TARN TARAN	CHOHLA SAHIB	AQUA	31.24900	74.93400	13:06:09	D	48.20
160	TARN TARAN	CHOHLA SAHIB	AQUA	31.30600	74.98400	13:06:09	D	28.10
161	TARN TARAN	KHADUR SAHIB	S-NPP	31.37620	75.11230	14:32:22	D	8.00
162	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.31630	74.93390	14:32:22	D	4.10

163	TARN TARAN	NAUSHERA PANNUAN	S-NPP	31.33100	74.94920	14:32:22	D	7.30
164	TARN TARAN	PATTI	S-NPP	31.16950	74.78940	14:32:22	D	5.50
165	TARN TARAN	PATTI	S-NPP	31.19620	74.74950	14:32:22	D	10.90
166	TARN TARAN	PATTI	S-NPP	31.20010	74.74690	14:32:22	D	6.50
167	TARN TARAN	PATTI	S-NPP	31.22220	74.77680	14:32:22	D	4.70
168	TARN TARAN	PATTI	S-NPP	31.31930	74.80020	14:32:22	D	11.70
169	TARN TARAN	PATTI	S-NPP	31.32200	74.80400	14:32:22	D	7.70
170	TARN TARAN	PATTI	S-NPP	31.32460	74.87430	14:32:22	D	4.40
171	TARN TARAN	PATTI	S-NPP	31.32860	74.87020	14:32:22	D	10.30
172	TARN TARAN	TARN TARAN	S-NPP	31.38390	74.82890	14:32:22	D	4.40
173	TARN TARAN	TARN TARAN	S-NPP	31.40970	74.75790	14:32:22	D	3.40
174	TARN TARAN	TARN TARAN	S-NPP	31.41390	74.75610	14:32:22	D	5.30
175	TARN TARAN	TARN TARAN	S-NPP	31.45190	74.84050	14:32:22	D	8.40
176	TARN TARAN	VALTOHA	S-NPP	31.13120	74.64690	14:32:22	D	6.10
177	TARN TARAN	VALTOHA	S-NPP	31.20020	74.53440	14:32:22	D	50.00
178	TARN TARAN	VALTOHA	S-NPP	31.20040	74.54180	14:32:22	D	50.70
179	TARN TARAN	VALTOHA	S-NPP	31.20210	74.53690	14:32:22	D	39.50
180	TARN TARAN	VALTOHA	S-NPP	31.20240	74.54430	14:32:22	D	39.50
181	TARN TARAN	VALTOHA	S-NPP	31.20270	74.55180	14:32:22	D	8.40

### Details of residue burning events in Haryana on 25-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	FATEHABAD	BHUNA	S-NPP	29.53260	75.76740	14:32:22	D	4.00
2	FATEHABAD	FATEHABAD	S-NPP	29.53870	75.50500	14:32:22	D	13.40
3	FATEHABAD	FATEHABAD	S-NPP	29.57740	75.56920	14:32:22	D	16.10
4	FATEHABAD	JAKHAL	S-NPP	29.74460	75.71230	14:32:22	D	6.20
5	FATEHABAD	JAKHAL	S-NPP	29.74580	75.71220	14:32:22	D	7.90
6	FATEHABAD	RATIA	S-NPP	29.69350	75.68040	14:32:22	D	9.70
7	FATEHABAD	TOHANA	S-NPP	29.68270	75.82510	14:32:22	D	7.20
8	JIND	NARWANA	AQUA	29.76400	76.15100	13:06:09	D	23.80
9	JIND	UCHANA	AQUA	29.56000	76.15200	13:06:09	D	41.00
10	JIND	UCHANA	AQUA	29.56300	76.15600	13:06:09	D	43.40
11	SIRSA	ELLENABAD	S-NPP	29.41790	74.89620	14:32:22	D	6.70
12	YAMUNANAGAR	SADHAURA	AQUA	30.42700	77.23400	13:06:09	D	18.10

### Details of residue burning events in Uttar Pradesh on 25-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	ALIGARH	KHAIR	AQUA	27.99800	77.54400	13:06:09	D	17.10
2	BARABANKI	RAMNAGAR	AQUA	27.05600	81.29400	13:06:09	D	13.60
3	BARABANKI	RAMNAGAR	AQUA	27.05700	81.29900	13:06:09	D	12.20
4	FATEHPUR	FATEHPUR	AQUA	25.95300	80.74200	13:06:09	D	15.60
5	RAMPUR	BILASPUR	S-NPP	28.79730	79.28230	01:42:05	N	0.50
6	SHAHJAHANPUR	PUWANYA	S-NPP	28.19330	80.13690	01:42:05	N	0.70
7	SHAHJAHANPUR	PUWANYA	S-NPP	28.19420	80.13500	01:42:05	N	0.70
8	SHAHJAHANPUR	PUWANYA	AQUA	28.30900	80.16900	13:06:09	D	12.60
9	SHAHJAHANPUR	TILHAR	AQUA	27.94700	79.80500	13:06:09	D	14.00

### Details of residue burning events in Rajasthan on 25-Oct-2022

S. No.	District	Tehsil / Block	Satellite	Latitude	Longitude	ACQ_TIME	Day / Night	Fire Power (W/m <sup>2</sup> )
1	BUNDI	BUNDI	S-NPP	25.34020	75.84130	14:32:22	D	7.70
2	HANUMANGARH	TIBI	S-NPP	29.52790	74.55710	14:32:22	D	5.20
3	KOTA	DIGOD	S-NPP	25.18930	76.18170	14:32:22	D	8.80
4	KOTA	DIGOD	S-NPP	25.19020	76.18090	14:32:22	D	10.10



**The study used data received from following Satellites at NRSC Ground Station**

S. No.	Satellite Name	Sensor	Resolution (meter)	Day / Night Passes
1.	Suomi NPP	VIIRS	375 / 750	Both
2.	Terra	MODIS	1000	Both
3.	Aqua	MODIS	1000	Both

**The rice mask for the Punjab and Haryana were provided by MNCFC, MoA&FW, Govt of India  
The kharif crop mask for Delhi, Uttar Pradesh, Rajasthan and Madhya Pradesh were provided by NRSC**

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GIS Maps of fire events can be visualized online on ICAR KRISHI Geoportal website: <http://geoportal.icar.gov.in:8080/geoexplorer/composer/>

(Part of KRISHI Portal: <https://krishi.icar.gov.in> initiative)

and on IARI CREAMS website (<http://creams.iari.res.in/cms2/index.php>)

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